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FOR INDIA

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A MANUAL of the DISEASES of INDIA.
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A MANUAL

OF

AMILY MEDICINE

FOR INDIA

BY

W. J. MOORE

LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH
MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND
DEPUTY SURGEON-GENERAL H.M. INDIAN MEDICAL SERVICE

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THIRD EDITION

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PREFACE

TO

THE THIRD EDITION.

THE SECOND EDITION of this work having been rapidly expended, a third edition is now issued in accordance with the instructions of the Government of India.

Brief accounts of several maladies not appearing in the former editions are inserted; the additions in almost every instance having been made in consequence of communications expressive of disappointment that certain information sought for, could not be found in the book.

The whole text has also been attentively reconsidered, and various alterations have been made in the wording, tending as much as possible to simplify the subjects.

It is therefore hoped that this third edition will be even more useful than the preceding volumes.

October 1879.

PREFACE
TO
THE SECOND EDITION.

THE FIRST EDITION of the 'Manual of Family Medicine for India' was written, and the medicine chest to accompany the work was designed, with especial reference to the wants of families, and to the requirements of small Indian camps. And it is believed that no work less comprehensive and detailed, and that no medicine chest less liberally fitted, would meet the above purposes. But it soon became evident that a large class, using the 'Manual of Medicine,' desired a smaller and less expensive medicine case than that adapted for large families, small camps, or detachments. The rapid disposal of the first edition of the work afforded the opportunity of meeting this wish, and, in accordance with the desire of His Excellency the Viceroy and Governor-General in Council, a second edition of the 'Manual of Family Medicine for India' has been prepared under the design of rendering the book serviceable, with a companion medicine case of a very economical description. As little as possible of the original work has been omitted, but the text has been altered so as to suit the smaller and cheaper medicine case; and in some instances it has been necessary to re-write the whole of the treatment. Several additions, not contained in the first edition, have also been made. When the particular drug or drugs essential for the relief of any malady is not in the case, or to be readily procured from the neighbouring bazaar, the course recommended consists of advice as to diet and general treatment, and indicates the use of such palliative drugs as are available.

A paragraph in brackets and smaller type is added to the treatment of most of the diseases, advising what medicines should, if possible, be procured from a chemist.

It is hoped that the work in its present form will prove useful in enabling the reader to recognise a malady, and as the means of avoiding improper treatment even in those cases in which the medicines most desirable may not be at hand.

December 1876.

PREFACE

TO

THE FIRST EDITION.

THE following Notifications by the Government of India sufficiently show both the origin and plan of this work—excepting as regards Chapter V., on the Feeding and Management of Infants, which was added at the Author's suggestion.

No. 440.

Extract from the Proceedings of the Government of India in the Department of Agriculture, Revenue, and Commerce,—dated Simla, the 31*st October*, 1871.

[GENERAL.]

Read—

A Memorandum, dated the 23rd September, by the Officiating Inspector-General of Forests, asking for permission to print, for circulation to Forest Officers, a Manual of Directions for the use of common medicines, and the treatment of some of the most common diseases.

Read also—

A Memorandum, dated the 2nd October, on the above, by the Secretary in this Department, suggesting the

> advisability of compiling and printing for general use by Officers whose duties compel them to reside very frequently beyond the reach of medical aid, *e.g.* Officers in the Customs, Opium, Forests, Public Works, and other departments, a simple, brief, and concise Medical Vade Mecum.

Observations.—A simple and concise popular work on medicine suited to the wants of non-professional persons in this country has long been wanted. To the many Officers of the Forests, Survey, Customs, Opium, and other Departments, who are scattered over India in situations far removed from medical advice, simple instructions for the treatment of accidents, of diseases, and especially of those tropical diseases which are most common, and which require *early* treatment, would, it is believed, prove of much service, not only for their own use, but also for the use of their families and establishments. Such a work could not take the place of proper medical advice, nor is it proposed that it should be resorted to where such advice can be obtained; but in the absence of such assistance much might be done, and probably many lives might be saved, if a manual, well suited to the circumstances, accompanied by a small medicine-chest, were placed in the hands of all those who have no other guide.

2. Such a work, however, to be really useful, must be *extremely* simple and concise. It must contain no technical terms, and it should deal with as few remedies as possible. With this object all the medicines recommended as absolutely essential should first be enumerated, their action explained, and the proper doses, both for adults and children, stated. (Small medicine boxes will be hereafter distributed, arranged expressly with reference to this first chapter.) In the next chapter the symptoms of the chief diseases, and the treatment which is best suited to each, should be described. A third

chapter should be devoted to the diagnosis and cure of accidents; and a fourth should contain general instructions for preserving health, especially in those circumstances of exposure and of residence in unhealthy localities which so frequently attach to the performance of duty.

Resolution.—His Excellency the Viceroy and Governor-General in Council has resolved to offer a prize of Rs. 1,000 for the best manual of this kind (special regard being had to brevity and simplicity), which shall be submitted on or before the 15th October, 1872. Manuscripts should be sent to the Inspector-General of Hospitals, Indian Medical Department, Calcutta, superscribed 'Manual of Family Medicine for India.' A sealed envelope should accompany each, the outside bearing a motto, and containing within the name of the author. The work will be the property of the Government, and will be published with any additions or omissions that Government may deem necessary at the public expense, bearing the author's name.

Order.—Ordered, That a copy of this Resolution be sent to all local Governments and Administrations for general information, and to the Home Department for communication through the proper channels to all branches of the Medical services.

A. O. HUME,
Secretary to the Government of India.

Department of Agriculture, Revenue, and Commerce.

[GENERAL.]

1*st August*, 1873.

No. 623.—The Prize offered by the Government of India in Resolution No. 431–40, dated 31st October, 1871, for the compilation of the best 'Manual of Family Medicine for

India,' has been awarded to Surgeon-Major W. J. Moore, of the Rajpootana Political Agency.

A. O. Hume,
Secretary to the Government of India.

In the spirit of the first Government Notification, the use of technical terms has been as much as possible avoided, and both in the description of diseases, and in the treatment recommended, simplicity has been sought in as great a degree as the subjects permit. Slight mention of some maladies, as, for instance, Bright's disease, diabetes, cancer, consumption, &c., has been made rather with the desire of affording the means of ascertaining that such affections are not present, than with the idea of enabling readers to treat those ailments. Numerous maladies well known to medical men, as for example various diseases of the liver, are not even mentioned, as their introduction might tend to confuse the unprofessional reader. For the same reasons minute details of variation of symptoms, as those for instance distinguishing *peritonitis* from *enteritis*, have not been attempted. Similarly very many medicines of acknowledged efficacy are not even named, the ingredients entering into the various prescriptions being limited to the contents of the accompanying medicine-chest. For the sake of brevity the symptoms and treatment of many diseases on which separate volumes have been written, and the uses and action of different medicines on which much more might be advantageously said, are here compressed into a few lines. In short, the aim has been to describe the more ordinary diseases and injuries in such a manner that they may be recognised and distinguished by a non-professional person, and to point out the remedies best adapted for relief or cure, so far as they can be properly or safely applied in the absence of professional aid. As may be observed, most of the diseases to which children are subject have received special attention—a feature which it is hoped will render the volume more acceptable to that large and increasing class in India whose duties necessitate the absence of their families from localities in which professional assistance is obtainable.

The various engravings illustrating different subjects have been designed with the view of diagrammatic correctness, rather than for artistic effect. Their introduction into the volume will, it is believed, tend to render many things plain, which, notwithstanding the clearest description, might otherwise be obscure to the non-professional reader. The nature of the subjects thus treated does not admit of much variety in illustration by drawings, as generally there is only one right method of treating surgical injuries, which are the principal conditions thus illustrated. Hence the diagrams must be more or less similar to those found in other surgical works, and experts may recognise some old friends amongst the woodcuts. Thus the drawings at pages 395, 469, 470, 496 have been adapted from that well-known work, Dr. Druitt's 'Surgeon's Vade Mecum;' those at pages 438, 439, showing the course of the blood-vessels, from Dr. Schaible's 'First Help in Accidents.' The diagrams at pages 375, 376, showing the process of teething, are slightly altered from Dr. Ewart's edition of 'Goodeve's Management of Children in India;' while the drawings illustrating the resuscitation of the drowning were supplied through the kindness of the Secretary of the Royal Humane Society.

Lastly, while it is freely confessed this book cannot supply the place of the physician or surgeon, it is nevertheless hoped that in their unavoidable absence, so often and so unfortunately felt in India, the volume may never be consulted without advantage to those requiring such assistance.

July 1874.

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INDIAN

DOMESTIC MEDICINE.

CHAPTER I.

CONTENTS OF THE INDIAN MEDICINE CASE, AND DESCRIPTION OF INDIAN MEDICINES RECOMMENDED FOR USE.

THE MEDICINES contained in the small case designed to accompany the *Manual of Family Medicine for India,* and which are referred to in the *large type* on the treatment of the various diseases (Chaps. II. and III.), are fourteen in number. They have been selected with special regard to economy of means and space, and to efficiency, as being the medicines most useful in non-professional hands, until other remedies, as mentioned in the *small type*, or professional aid may be procurable. The list of the contents of the small medicine case is as below. The English or more common names are first given, opposite which the Latin terms are inserted; so that, in procuring the medicines, both names being used, there can be no mistake. In the description of the medicines (*vide* p. 8) the French names are also added, as it often happens that travelling Anglo-Indians desire to procure a medicine, which foreign chemists do not recognise by the English term.

1. AMMONIA, AROMATIC SPIRITS OF, OR SAL VOLATILE . .	*Spiritus Ammoniæ Aromaticus.*
2. CHLORAL	*Chloral Hydras.*
3. CHLORODYNE	*Chlorodyne.*
4. CHLOROFORM	*Chloroformum.*
5. DOVER'S POWDER, OR COMPOUND POWDER OF OPIUM AND IPECACUANHA . . .	*Pulvis Ipecacuanhæ cum Opio.*
6. ETHER, NITRIC, SPIRITS OF; OR SWEET SPIRITS OF NITRE	*Spiritus Ætheris Nitrosi.*
7. GINGER, TINCTURE OF, STRONG	*Tinctura Zingiberis Fortior.*
8. IPECACUANHA POWDER . .	*Pulvis Ipecacuanhæ.*
9. IPECACUANHA WINE . . .	*Vinum Ipecacuanhæ.*
10. MAGNESIA, CITRATE OF, GRANULAR EFFERVESCENT . .	*Magnesiæ Citras* (*Granular*).
11. OPIUM, CAMPHORATED TINCTURE OF; OR PAREGORIC .	*Tinctura Camphoræ Composita cum Opio.*
12. PODOPHYLLUM	*Podophyllin.*
13. QUININE, SULPHATE OF . .	*Quiniæ Sulphas.*
14. SODA, SULPHATE OF . . .	*Sodæ Sulphas.*

The medicine case also carries a minim measure, a box of scales and weights, and a small knife, or spatula.

Various other medicines, ordinarily procurable in the Indian bazaars, have been also recommended in the large type for use on emergency. The list of these medicines is as below, and the Hindustanee name is given opposite the English one:—

1. ALUM	*Phitkarree.*
2. AMMONIA, HYDROCHLORATE OF; OR CHLORIDE OF AMMONIUM, also commonly called SAL-AMMONIAC . .	*Naushadur or Nissadal.*
3. ASSAFŒTIDA	*Hing*
4. BAEL, OR ÆGLE MARMELOS.	*Bael.*
5. CASTOR OIL	*Rindee ka Tail.*
6. CAMPHOR	*Kafoor.*
7. GRASS OIL	*Rosa ka Tail.*
8. IRON, SULPHATE OF; also COPPERAS, OR GREEN VITRIOL	*Hera-kusees.*
9. POMEGRANATE	*Anar.*

10. Potash, Nitrate of, or Saltpetre	*Shora.*
11. Senna	*Senna Mukki.*
12. Stramonium	*Dhatura.*
13. Sulphur	*Ghunduk.*

The appearance, use, action, and doses of the medicines above enumerated are detailed at pages 8 to 29.

It has not been considered necessary to describe the medicines which are recommended for use in the *small type,* to be obtained from the chemists, as the person using the Manual will not be required to manipulate them.

It should be clearly understood that the treatment of illness by the medicines in the case, or by medicines obtainable from the bazaar, as advised in Chapters II. and III., is not intended to take the place of medical assistance and advice; but it is offered as a substitute *when such aid* is *not obtainable, and as the method by which improper treatment may be avoided.*

COMPOUNDING OF MEDICINES.

Weights and Measures used in Compounding Medicines.

Apothecaries' Weight for Solids.

20 grains make	1 scruple
3 scruples „	1 drachm
8 drachms „	1 ounce
12 ounces „	1 pound

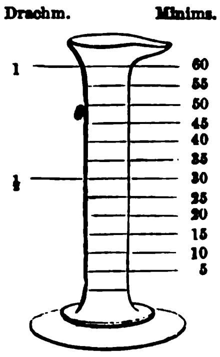
The grain weights, except the half-grain, are stamped with as many dots or circles ○ as they weigh grains; one mark on the one grain, two on the two grain, three on the three grain weight, and so on. On the half-grain weight are the figures ½. The larger weights are marked in English, and in the old symbolical characters.

Apothecaries' Measure for Fluids.

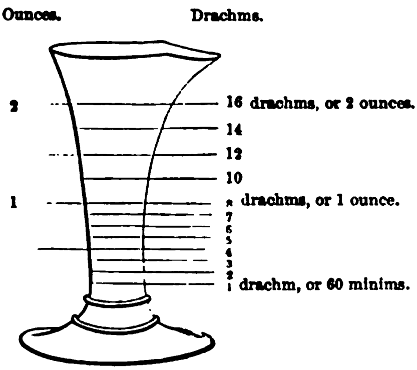
60 minims make	1 drachm
8 drachms „	1 ounce
20 ounces „	1 pint
8 pints „	1 gallon

Glass measures as sketched below are placed in all medicine chests large enough to admit them :—

MINIM MEASURE.



GRADUATED TWO-OUNCE MEASURE.



When the quantity of tinctures, oils, or other medicines is so small that it cannot be measured by minims, *drops* are ordered, which should be poured from the bottle accurately. The bottle should be held obliquely, with the lower part of the lip resting against the stopper. The bottle should then be carefully tilted, when the contents will drop from the lower edge of the stopper. A little practice will enable any person to drop one or more drops with great exactness.

It should be remembered that drops do not necessarily equal minims, as fluids vary in density; as, for instance, oil and water. The size of the mouth of the bottle, and the manner in which the fluid is manipulated, may also vary the size of the drops. Measurement of fluids by the minim glass is therefore always adopted, unless the medicine is required in very small quantities.

In the case of fluid medicines, as a matter of convenience it is customary to measure the dose in some article of common use. It is therefore necessary to possess a knowledge of the relation existing between the domestic and the pharmaceutical measure. The following is a rough measurement of fluids approximating to the apothecaries' weight inserted above. This rough measurement is sufficiently accurate for giving out doses of ordinary mixtures, the active ingredients in which are diluted by water; but it should not be used to compound medicines, or to measure them in the undiluted condition, as the size of spoons, of the same class, is liable to vary.

1 tea-spoonful . . = one drachm
1 dessert-spoonful . . = two drachms
1 table-spoonful . . = four drachms or half an ounce
1 small wine-glassful . = about two ounces

In Compounding Medicines distilled water should be used. If this cannot be procured, water which has been purified by boiling and filtering (*vide* Chap. V. p. 637) should always be used, and the mortar, measures, knives, &c. should be kept scrupulously clean.

DOSES OF MEDICINES.

Unless expressly stated to the contrary, the doses mentioned in the account of diseases, and in the collection of prescriptions (*vide* Appendix to Chaps. II. and III.), are those adapted for an ordinary strong adult. The younger and less robust the child the smaller is the dose necessary, and delicate females usually require a less powerful agent than stronger women, or than those of the other sex.

The following table shows the approximate doses of medicines for different ages:—

Age above	Maximum dose one ounce	Maximum dose one drachm	Maximum dose one scruple
1 month	24 grains	3 grains	1 grain
6 „	2 scruples	5 grains	1¾ grain
1 year	1 drachm	8 grains	2½ grains
2 „	1¼ drachm	9 grains	3 grains
3 years	1½ drachm	12 grains	4 grains
5 „	2 drachms	15 grains	5 grains
7 „	3 drachms	20 grains	7 grains
10 „	½ ounce	½ drachm	½ scruple
12 „	5 drachms	40 grains	14 grains
15 „	6 drachms	45 grains	16 grains
20 „	7 drachms	50 grains	18 grains
21 „	1 ounce	1 drachm	1 scruple

The doses of medicines stated in books are supposed to be for ordinarily strong men between twenty-one and forty-five years of age, or in the prime of life. Hence from this standard it will appear by the table, that if the dose of any medicine for a full-grown man of twenty-one years of age is one ounce (maximum dose), then the dose of the same medicine for a child above one month is twenty-four grains, for a child above five years of age two drachms, and for a child above ten years half an ounce. Or if one scruple is the proper dose for a full-grown man, the dose of the same medicine for a child seven years old will be seven grains, and for a child one month old one grain.

In general terms—two-thirds of the full or adult dose may be given at about sixteen years of age; half after ten; a third after six; a quarter after five; a fifth after three; a seventh after two; one-eighth after one year; one-twelfth after six months; and one-twentieth at one month.

The above may be accepted as for ordinarily strong children, but when dealing with weakly children, it may be advisable to lessen the quantities by one-sixth, up to one year of age, and by one-eighth from one year to ten years of age.

In the foregoing table, in the case of *fluid* medicines, *fluid* ounces and *fluid* drachms must be substituted for the weights of the same names, and *minims* for grains, according to apothecaries' measure, *vide* p. 3. In measuring minims the small minim measure carried in the case must be used. It is numbered ten, twenty, thirty minims, up to sixty, or one drachm (*vide* p. 4).

Independent of the differences which exist between the doses suited for an adult male, and a delicate female, as mentioned above, other circumstances, as habit, disease, climate, mind, temperament, race, and idiosyncrasy, must often be considered when regulating the dose. Thus children are peculiarly susceptible to the influence of opium, very minute quantities having proved fatal to infants; and unfortunately opium is the powerful agent in the 'soothing syrups' and 'cordials' sold for children. Habit will enable certain people to consume large quantities of opium, arsenic, and of some other substances: in certain maladies—as, for instance, *senile gangrene*—large doses of opium produce little effect. In a tropical climate it is sometimes undesirable to use purgatives with the freedom with which they may be given in other latitudes. Mercury is borne best in hot climates, as the more free perspiration carries it out of the system; while opium is not so well tolerated because the heat increases the determination to the head. Alcoholic stimulants follow the same rule, being more injurious in hot than in cold climates. A peculiar temperament often forbids an energetic treatment proper for other persons. Natives of India, as a rule, require smaller doses than Europeans. Lastly, idiosyncrasy is illustrated by the smallest particle of mercury sometimes producing salivation (*vide* p. 583), by iodide of potassium occasionally exciting symptoms of *coryza* (*vide* p. 584), by quinine causing sore throat and eruptions on the skin (*vide* p. 19), by assafœtida sometimes causing faintness (*vide* p. 23), by ipecacuanha producing cough, sneezing, and watering of the eyes and nose (*vide* p. 14), and by santonin occasioning red-coloured urine, and green or yellow vision (*vide* p. 424).

DESCRIPTIONS OF MEDICINES.

The appearance, properties, principal uses, and doses of the various medicines carried in the case are now briefly noted.

The prescriptions referred to by number in the account of the action of medicines, and in the treatment of diseases, will be found in the Appendix to Chaps. II. and III. p. 573.

1. **AMMONIA, AROMATIC SPIRITS of; or SAL VOLATILE** (*Spiritus Ammoniæ Aromaticus*). French: *Esprit de Sal Volatile.*—Aromatic spirits of ammonia is a nearly colourless liquid, with strong ammoniacal odour, prepared by distilling carbonate of lime with oil of lemon, oil of nutmeg, and rectified spirits of wine. It is a strong diffusible stimulant, producing a sensation of warmth at the pit of the stomach, and an agreeable glow in the system. It is used in hysteria, headache, nervous disorders, giddiness, sinking of the vital powers, palpitation, fainting, and in some forms of dyspepsia, as heartburn and acidity of the stomach. Also with opium when, as sometimes occurs in painful affections of the womb, a combination of sedative and stimulating action is required. It is also very useful for children; especially for infants, who, generally owing to bad, or over-feeding, may be

tormented by wind, or by colicky pains in the bowels. To children of from one to three months old, from one to two drops may be given; from three to six months old, two to five drops; from six to twelve months old, five to eight drops in a tea-spoonful of water; or, in sufficient water to reduce the strength, so that it may be easily swallowed. The dose for an adult is half a drachm to a drachm. Aromatic spirits of ammonia enters into Recipes 29, 30, 47, 50, 66, 67, 68.

2. **CHLORAL** (*Chloral Hydras*). French: *Chloral Hydrate.*—The hydrate of chloral, commonly called chloral, used in medicine, is produced by a chemical process from spirits of wine, chlorine gas, and water. It is a white crystalline substance, generally seen in small pieces about the size of a pea, but sometimes in much larger flakes. It has a pungent odour, and a cool acrid taste, rapidly melting on the tongue.

In small doses chloral exerts a calmative influence over the system. In larger doses it induces sleep. It is given in many cases instead of opium to procure sleep, and it differs from opium in its action in not producing any excitement of the system; nor usually, any subsequent giddiness, headache, nervous depression, loss of appetite, or constipation, so often following the use of opium. First doses are, however, more likely to be followed by some feelings of the kind, than when the person has become accustomed to the medicine. Chloral has also a further advantage over opium, as the dose does not need to be so steadily increased to produce the same effects. Sleep usually comes on in less than half an hour after taking chloral, and it is generally calm and refreshing, yet not so profound as to prevent waking to cough, take food, &c. It has been used for neuralgia, rheumatism, sea-sickness, convulsions, asthma, cough, tetanus, delirium tremens, nervous irritability, spasmodic complaints, for the wakefulness induced by mental fatigue, and in most other diseases characterised by restlessness and want of sleep. Chloral is not, however, a medicine which can be taken habitually with safety. For the habit of chloral-drinking, like the habit of opium-eating, or of dram-drinking, is one which grows upon the person so indulging, the result being the production of a condition of system, from chloral-drinking, as pitiable as that arising from either opium or spirits. As cases of poisoning have occurred from chloral, and as the drug acts more strongly on some persons than on others, it must always be used with caution. In diseases of the chest attended with profuse expectoration, especial caution is required in the use of chloral, as, if given in too large quantities, the soporific effect may prevent the patient expectorating, and thus increase difficulty of breathing. It is generally observed that a person in the habit of drinking spirits, will require a larger dose of chloral than one unaccustomed to alcoholic drinks. Those debilitated and enfeebled by almost any cause, require a smaller dose than stronger persons. The ordinary dose for an adult is from five to ten grains as a calmative, and from fifteen to forty when required to produce sleep. After twenty grains the dose should be increased *cautiously*, by five grains at one time, up to forty grains, if necessary. Chloral is best given dissolved in a little sugar and water. A convenient form of chloral is the *Syrup of Chloral*, sold by the chemists, of which one fluid drachm contains ten grains of chloral. Chloral enters into Recipe 75.

3. **CHLORODYNE** (*Chlorodyne*). French: *Chlorodyne.* —Chlorodyne is a dark-coloured thick fluid containing morphia, chloroform, Indian hemp, hydrocyanic acid, peppermint, and spirit. It is agreeable to the taste, and very useful as a family medicine in slight disorders, such as stomach spasms, flatulency, griping, also for simple bronchial and asthmatic affections. In the use of chlorodyne reference must be had both to the age of the patient and to the urgency of the symptoms, also to the effect desired to be produced. The following scale of doses may be generally adopted:—

Anodyne and Diaphoretic, 5 *to* 15 *drops*.—In Coughs, Colds, Influenza, Agues.

Sedative and Anti-Spasmodic, 10 to 25 *drops*.—In Asthma, Bronchitis, Spasms, Cramp, Sea-Sickness.

Astringent, 15 *to* 30 *drops*.—In Cholera, Dysentery, Diarrhœa, Colics.

For children	1 to 3	months old	1 to 2 drops
„	3 „ 6	„ „	2 „ 4 „
„	6 „ 12	„ „	3 „ 5 „
„	1 „ 3	years „	4 „ 6 „
„	3 „ 8	„ „	5 „ 10 „
„	8 „ 16	„ „	8 „ 20 „

Chlorodyne may be taken in a little water, syrup, linseed tea, mucilage, or any convenient fluid, or in small quantities dropped on sugar, and repeated in diminished doses every two or three hours, until the desired effect is produced. Chlorodyne enters into Recipe 67.

Caution.—The chlorodyne bottle should be kept well corked, and be well shaken previous to taking each dose; otherwise the thicker portion falls to the bottom, and an unequal dose is the result.

4. **CHLOROFORM** (*Chloroformum*). French: *Chloroforme.*—Chloroform is a volatile, heavy, colourless liquid, having a fruity ethereal odour, and sweet pungent taste. It is prepared by the distillation of rectified spirits of wine with chloride of lime. The inhalation of chloroform into the lungs produces insensibility. It is thus employed to prevent pain during surgical operations. But unless properly administered it may cause sudden death, and should therefore be only employed as an inhalation under the directions of a medical man. It is used internally as a remedy for sea-sickness, for diarrhœa, for cholera, and for some other maladies. The dose for an adult is from three to five drops; to children it should not be given internally. Externally it is used with opium, or alone, to form soothing and benumbing liniments or embrocations for neuralgia. Chloroform enters into the composition of Recipes 56, 66, 67, 89, 90.

5. **DOVER'S POWDER; OPIUM AND IPECACUANHA POWDER, COMPOUND,** commonly called **DOVER'S POWDER** (*Pulvis Ipecacuanhæ cum Opio*). French: *Poudre d'Ipécacuanha composée.*—This medicine is here placed under the heading 'Dover's Powder,' in order to render the difference between ipecacuanha powder and *compound* ipecacuanha powder (ipecacuanha powder with opium—*Dover's Powder*) more apparent. Compound ipecacuanha powder is of a light yellowish-grey colour. Containing both ipecacuanha and opium, also a considerable proportion of sulphate of potash, it is useful in a great variety of complaints, particularly in chest affections, and in maladies such as rheumatism, when action on the skin is desirable; the ipecacuanha and the opium mutually aiding the separate influence which is induced on certain parts by each medicine. In malarious seasons or localities, when the bowels are disturbed with a feverish condition of system, a combination of Dover's powder and quinine is often very beneficial. After taking Dover's powder the patient should be kept warm, and to prevent nausea, which may arise from the ipecacuanha, nothing should be drunk for some little time. The dose for adults is from five to fifteen grains. For a child three months old, from a quarter to half a grain; after a year old one grain. Compound ipecacuanha powder contains one grain of opium, and one grain of ipecacuanha in every ten grains of the powder. When required for use the quantity must therefore be carefully weighed. Compound ipecacuanha powder enters into Recipes 38, 39, 40.

6. **ETHER, NITRIC, SPIRITS OF,** or **SWEET SPIRITS OF NITRE** (*Spiritus Ætheris Nitrosi*). French: *Esprit de Nitre dulcifié.*—Spirits of nitric ether is a transparent liquid, with slight yellow tinge, affording an apple-like odour, and of sweet, sharp, cooling taste. It is obtained by distilling rectified spirits of wine with nitric acid. It exerts a stimulating action on the skin, leading to increase of perspiration.

It also acts on the kidneys, promoting the secretion of urine, and is thus useful in many complaints, such as colds, fevers, and inflammations, when there are dryness of the skin and scanty urine. The dose for an adult is from thirty to sixty minims. For a child, six months old, three to four drops; one year old, six to eight drops. Spirits of nitric ether enters into Recipes 29, 31, 51, 66, 71, 72, 74.

7. **GINGER, TINCTURE OF, STRONG** (*Tinctura Zingiberis Fortior*). French: *Teinture de Gingembre.*—Strong tincture of ginger, sometimes called *essence of ginger*, is prepared by macerating ginger in spirits of wine, and is of a bright slightly yellowish colour. The principal use of tincture of ginger in medicine is as a warm stomachic, as which it is often beneficial in diarrhœa, flatulence, and colicky pains, especially if accompanied by hysterical or nervous symptoms. It is also given in combination with other medicines of a cold nature, as acids. It is useful, diluted with about thirty parts of water, as a gargle for sore throat. The dose is from five to twenty drops for an adult. For a child one year old, from one to four drops. Tincture of ginger enters into Recipes 2, 20, 24, 29, 52, 54.

8. **IPECACUANHA POWDER** (*Pulvis Ipecacuanhæ*). French: *Ipécacuanha.*—Powdered ipecacuanha is the pulverised root of the ipecacuanha plant. It is a pale brown powder, with faint nauseous odour. In large doses ipecacuanha powder is the most valuable and safe of all vegetable emetics. In smaller doses it acts on the skin, exciting perspiration, and on the windpipe and tubes leading to the lungs, promoting expectoration. It thus resembles in its action tartar emetic, but is less powerful, and does not produce the depressing effect following the use of tartar emetic. Ipecacuanha in different forms is used chiefly as an emetic in fevers, or in croup; in large doses in the treatment of dysentery; and in smaller quantities in cough, bronchial and lung affections. It is also often useful in checking the vomiting of

pregnancy. It should be recollected that in exceptional instances ipecacuanha, or even the smell of it, excites cough, sneezing, and watering of the eyes and nose, pain in the forehead, and a feeling of oppression at the chest. The dose of powdered ipecacuanha for an adult is, as an emetic, from twenty to thirty grains; for a child of one year old, from two and a half to three grains. As an expectorant, or to act on the skin, one grain for an adult, and the twelfth of a grain for a child. Powdered ipecacuanha enters into Recipes 12, 32, 38, 39.

9. **IPECACUANHA WINE** (*Vinum Ipecacuanhæ*). French: *Vin d'Ipécacuanha.*—Ipecacuanha wine is made by macerating a certain quantity of ipecacuanha root in sherry wine, which liquid it resembles in appearance. Its action is the same as powdered ipecacuanha, viz. emetic in large doses, diaphoretic and expectorant (that is, increasing perspiration and expectoration) in small doses. Ipecacuanha wine, being a liquid, is better adapted for children than the powder. The dose of ipecacuanha wine as an emetic for an adult is from six to eight drachms in a pint of warm water. For a child one year old, one drachm in several ounces of water. For other action, as on the skin, or to promote expectoration, from ten to twenty minims for an adult, and from four to six drops for a child. Twenty minims of ipecacuanha wine are reputed to contain one grain of ipecacuanha, but the strength of the preparation varies, being often more powerful than the officinal computation. Ipecacuanha wine enters into Recipes 31, 34.

Note.—Another medicine containing ipecacuanha is called COMPOUND IPECACUANHA POWDER; but as it contains *Opium*, it is described under the heading of its popular name 'Dover's Powder,' so that the distinction between *compound* ipecacuanha powder and ipecacuanha powder may be more marked. (*Vide* p. 12.)

10 **MAGNESIA, CITRATE OF, GRANULAR EFFER-**

VESCENT (*Magnesiæ Citras* [*Granular*]). French: *Citrate de Magnésie.*—Citrate of magnesia is made from carbonate of magnesia, bicarbonate of potash, syrup of lemons, and citric acid. The Pharmacopœia preparation is a liquid, but the solid granular effervescing form is the most convenient. The latter occurs as light, white, rough-looking granules, of agreeable, slightly acid taste. Placed in water it effervesces briskly. One or two dessert-spoonfuls or more, put into a tumbler half full of water, will prove a mild but efficient aperient. A small teaspoonful taken in a wine-glassful of water will act both as an antacid and as a cooling draught. Half a teaspoonful with twenty minims of spirits of nitric ether, in one ounce and a half of water, forms a cooling febrifuge draught which may be taken during the hot stage of fevers. A cooling and refreshing drink may be made by adding to a tumblerful of cold water, previously sweetened with sugar, a small quantity of the citrate. The absence of nauseous taste renders it a favourite aperient and febrifuge for children. At one year old the dose would be one-eighth of the above-mentioned quantities.

11. **OPIUM, CAMPHORATED TINCTURE OF**, commonly called **PAREGORIC** (*Tinctura Camphoræ composita cum Opio*). French: *Teinture de Camphre composée*, or *Elixir parégorique.*—Camphorated tincture of opium is a light-coloured liquid, made by macerating opium, benzoic acid, camphor, and anise, in spirits of wine. The combination of other drugs with opium renders this a very useful preparation in most cases of cough, bronchial irritation, hooping cough, and chest complaints generally, especially when a cough is hacking and wearisome, and expectoration scanty. It contains two grains of opium in every ounce of the tincture, and therefore must be carefully measured. The dose for an adult is from thirty minims to one drachm, and if used alone it may be taken on white sugar. It is, however, more efficacious in combination with other remedies, as spirits of nitric

ether, and ipecacuanha wine. The dose for a child six months old is three drops; one year old, six drops; two years old, eight drops. Camphorated tincture of opium enters into Recipes 30, 31, 33, 34.

12. **PODOPHYLLUM** (*Podophyllin*). French: *Podophylle.*—Podophyllum is a pale greenish-brown powder, and is prepared from a creeping plant growing in America. Its action is that of a purgative, exerting an especial influence on the liver. Hence it is useful in constipation, in chronic liver affections, and in torpor of the liver. The dose as an active purgative is from one to two grains, as a milder aperient from one-third of a grain to half a grain, but delicate people generally find a little less than the above quantities sufficient. Podophyllum, although so good a medicine, has three faults. It is liable to gripe, it is long in acting, and it is sometimes uncertain in its action; at one time causing little motion of the bowels, at others an excessive flow. But by combination with other medicines it is found that all the good results may be obtained from podophyllum, and the unpleasant or uncertain effects avoided. Podophyllum is therefore seldom given alone, but generally in combination with hyoscyamus or belladonna, which prevents griping, and with rhubarb, colocynth, aloes, or blue pill, which prevents uncertain or deferred action. Podophyllum is seldom given to children; but has been recommended once for a certain form of constipation of children. (*Vide* p. 117).

Podophyllum has been chosen as the active ingredient of the only aperient pills carried in the small medicine case to accompany this volume, as being on the whole better adapted to the purpose than any other agent. But as no pill will suit every person, it is not intended to limit the choice of aperient pills to podophyllum, when Recipe 1 (p. 573) is referred to in the treatment of diseases. If, therefore, any person has a prescription for aperient pills, which he knows from experience suits his constitution, such pills may ordinarily be used instead of Recipe 1. Otherwise, in the event of Recipe 1 not answering the purpose, Recipes 8, 9, 10, 13, 14, or 15 may be procured and substituted. Podophyllum enters into Recipe 1.

13. **QUININE, SULPHATE OF QUININE** (*Quiniæ Sulphas*). French: *Sulfate de Quinine.*—Sulphate of quinine is made by submitting Cinchona or Peruvian bark to a chemical action by sulphuric acid. Pure sulphate of quinine should present the appearance of silky, snow-white crystals of an intensely bitter taste, sparingly soluble in water, and imparting to it a peculiar bluish tint. It dissolves in pure sulphuric acid with a feeble yellowish tint. Ten grains, with ten minims of dilute sulphuric acid should form a perfect solution. A reddish tint with sulphuric acid indicates adulteration with salicin; a black tint evidences sugar. Heated to a red heat on the blade of a knife held over a spirit-lamp, it is entirely destroyed and disappears, leaving only a black mark. These tests are of importance, as serving to determine whether any specimen of quinine is pure or adulterated.

The precise manner in which cinchona and quinine act on the system is not thoroughly understood; but as a substance very much resembling quinine has been found in the healthy blood, it is possible quinine supplies some constituent to that fluid, which is deficient in febrile diseases; and particularly in paroxysmal or malarious febrile diseases. It is also supposed to dull the sensibility of the nervous system, and to render the nerves less susceptible to the action of malarious influences. Quinine also exerts a certain power in reducing the temperature of the body. Applied to the white corpuscles of the blood (which are always in excess in some forms of malarious disease), it arrests their motion and apparently kills them. Lastly, it has an antiseptic power and arrests putrefaction. Thus, not only for fevers, but in neuralgic and rheumatic affections when they assume an intermittent or periodical form, recurring at intervals of days or hours, quinine is considered an efficient remedy. It should not, however, as a rule, be given until the bowels have been cleared out by some laxative medicine; neither should it be ordinarily given, during either the cold or hot stages of fever. But as soon as perspiration occurs, presuming the bowels in proper condition, quinine may be administered with advantage. Except under medical advice, it will only be right to prescribe quinine when the fever has a little abated, or after a critical sweating, when the pulse is soft and the skin moist. It must not be given (except under medical advice) in high fever, when there is headache, or when the pulse is quick and full and the skin dry. It is best administered in solution with lemon juice or sulphuric acid (Recipes 18 and 20). But when the taste is very objectionable to the patient, or when irritability of the stomach exists, it may be given in the form of pills made up with a little gum arabic, or it may be enclosed in gelatine capsules. It sometimes happens that quinine will not produce its full effect until the system has been *alkalized*, and it is therefore advisable to give, as well as quinine during fevers, some alkaline medicine, as Recipes 55 or 73. As a rule, sufficient quinine will have been taken when either singing or other noises in the ears occur, when the medicine should be reduced in quantity or altogether stopped. One too large dose may act as a succession of smaller, and speedily give rise to noises in the head, as above mentioned, and sometimes to deafness. Sight also may become dim, or even temporary blindness ensue. Severe frontal headache is also induced, while the face is flushed and the eyes bloodshot. These effects of large doses of quinine are known as 'cinchonism.' They generally pass off altogether in a few days, but sometimes permanent singing of the ears and slight deafness remain as a result of taking quinine.

Quinine acts very differently on various constitutions, some persons taking large doses without appreciable effect, others suffering from noises in the head, singing in the ears, eruptions on the skin, sometimes resembling 'nettle rash,' from sore throat, or from difficulty of breathing, after taking very small quantities. In exceptional instances even a grain of quinine has been known to produce such results.

Given during fevers in repeated doses, the quantity is for adults from four to eight grains, or a larger amount may be given at one time. For children from one to four grains is the dose according to the Table of Proportions (*vide* p. 6).

In addition to the influences exerted on the general system as detailed above, quinine has also a well-ascertained influence over the digestive organs. It gives rise to a slight increase of the flow of gastric juice into the stomach, and of other secretions into the intestines. This action, together with the undoubted power of retarding putrefaction, before alluded to, renders quinine extremely serviceable in various forms of dyspepsia, marked by flatulence and acidity, and in all cases of weak digestion, especially during the convalescence from acute diseases. When quinine is thus given to aid digestion, or simply as a tonic for debility, less than half the quantities previously mentioned will be sufficient doses.

It should also be known, that quinine will sometimes act on the womb, so that it should be given with caution to pregnant women; and not at all, if there is any peculiar susceptibility to the influence of quinine. This action of quinine on the womb may be taken advantage of (especially in malarious countries) to secure contraction of the womb after labour (*vide* p. 560).

Quinine is also useful in another manner, viz. as a prophylactic, or preventive of malarious diseases. During unhealthy seasons, or in malarious localities, all persons would do well to take a grain or two of quinine daily, either in the form of one of the Recipes given in the Appendix (Nos. 17, 18, 20) or in a little sherry wine.

Quinine enters into Recipes 3, 17, 18, 20, 25, 38, 39, 40.

Cinchona bark contains other matters, besides quinine, which have an influence over malarious fevers; but hitherto the cost of such preparations, approaching that of quinine, and the medicinal properties being less, they have not come into general use. Recently, a preparation called *Cinchona febrifuge*, or *mixed cinchona alkaloids*, has been manufactured at the Government cinchona plantations in India, which is a satisfactory substitute for quinine, and which costs very much less. The *cinchona febrifuge* is an extract of all the medicinal properties of the bark, and may be used in most cases when quinine is required, the only objection being, that in some people nausea may follow taking it in large doses.

14. **SODA, SULPHATE OF** (*Sodæ Sulphas*). French: *Sulphate de Soude.*—Sulphate of soda, better known as 'Glauber's salt,' usually occurs in the form of oblique transparent prisms; but sometimes it is seen in a less pure condition in the shape of small acicular crystals. Sulphate of soda is formed during the process of manufacturing hydrochloric acid, but it is also found abundantly in many mineral waters of reputed efficacy, and also in sea water. It exists largely in the soil of various parts of India, and an impure salt is sold in the bazaars, in the shape of dirty brown crystalline masses, and under the names of *Khari muttee*, or *Khari nun*. This variety is, however, scarcely ever sufficiently pure for medicinal use. Sulphate of soda is a saline purgative, producing watery stools, and sometimes acting, to a slight degree, on the kidneys. Like many other salines, when given in large doses, it slightly lowers the pulse, weakens the blood, and depresses the system. Hence it is termed a cooling purgative, and is adapted for use in inflammations, excepting inflammation of the bowels, and in fevers. With senna it may be used instead of the, to many persons, more nauseous and powerful purgative *sulphate of magnesia*

or 'Epsom salts,' to form a combination in common use known as 'black draught.' Being less powerful in its action, and perhaps less nauseous as compared with Epsom salts, it is more fitted for use by delicate persons, and in all cases where a mild aperient is desirable. By increasing the quantity it acts as energetically and less unpleasantly than 'salts,' and is therefore prescribed in this manual instead of the latter medicine. The well-established success of Carlsbad, of Friedrichshall, and of Hunyadi Janos water, in the treatment of various diseases, depends much on the sulphate of soda contained in these mineral waters; and if available, they may often be used, instead of sulphate of soda; the water last mentioned having the advantage of being nearly tasteless. The dose of sulphate of soda, for an adult, is from half an ounce to one ounce, and the taste may be much disguised by a teaspoonful of lemon-juice, or by three or four drops of sulphuric acid. It should be kept in a stoppered bottle. Sulphate of soda enters into Recipes 2, 3, 4, 47.

The appearance, properties, doses, and principal uses of the medicines which are recommended as procurable in the bazaars, are now noted.

1. **ALUM.** Native name: *Phitkari.* French: *Alum.*—Alum exists largely in many Indian soils, and is sold in a more or less impure state in all Indian markets. When pure, alum is a colourless crystalline, semi-transparent mass, having an acid, sweetish, astringent taste. The bazaar alum, when not pure, may be rendered fit for medicinal purposes by dissolving it in distilled water, straining, and evaporating the solution so as to obtain crystals of alum, which form as the water evaporates or 'dries up.' If distilled water cannot be obtained, water which has been boiled should be used. Alum is a powerful astringent, acting by causing the tissues with which it comes into contact to shrink and contract, and thus tending to close the orifices of bleeding or secreting

vessels and ducts. It is used especially as a lotion for ulcers when there is fear of 'proud flesh;' as a gargle for sore or ulcerated throats; also as an application to the eyes in ophthalmia, as a wash for sore nipples, and as an injection. It is less seldom used internally, but is beneficial in diarrhœa, and other chronic discharges. Alum enters into Recipes 58, 97.

2. **AMMONIA, HYDROCHLORATE OF, or CHLORIDE OF AMMONIUM**, commonly called *Sal-Ammoniac*, and known in the Indian bazaars as *Naushadur* or *Nissadel*. French: *Sal Ammoniac*.—It is principally prepared from the residue of the manufacture of coal gas, or animal charcoal. It occurs in the form of colourless, inodorous, translucent, tough, fibrous masses, difficult to pulverise, but soluble in water, and of a salt cold taste. That met with in the bazaars of India is obtained from the unburnt residue of brick kilns, in which the manure of animals is used as fuel. Indian-made sal-ammoniac is always more or less impure, and if intended for internal medicinal purposes, it requires to be dissolved in boiling water, and the solution should then be strained through calico and evaporated to crystallisation. When taken internally in small and continued doses, as eight or ten grains daily, it exerts an alterative effect. In larger doses it is stimulant, acting chiefly on the glandular structures. It has been used with advantage in chronic affections of the liver and spleen, in neuralgic affections of the head, in rheumatic affections, and in amenorrhœa. Locally, it is applied as a lotion to enlarged glands or swellings. Its principal use is the formation with nitre of a cooling lotion; or, when used with the same substance in larger quantities, a freezing mixture. *Vide* Recipe 83.

3. **ASSAFŒTIDA** (*Assafœtida*). Native name: *Hing*. French: *Assafœtida*.—Assafœtida is the gum resin of a plant growing in Persia and Northern India. It occurs in the form of irregular masses, partly composed of 'tears,' of a dark pink, or, if long kept, of a dull yellow colour. Assa-

fœtida is stimulant and antispasmodic in its medicinal action, and is useful in hysteria, flatulence, and in the nervous affections of females. The dose is from five to ten grains, but it is generally given in combination with other remedies, and it is mostly used as an injection. In exceptional instances, assafœtida excites giddiness or even fainting. It is rarely used for children. It may be obtained under the name of 'Hing' in any Indian bazaar, and is usually sufficiently pure for use, as recommended in this Manual. Assafœtida enters into Recipe 105.

4. **BAEL** (*Ægle Marmelos*, called also *Stone Apple*). Native name : *Bael geerie*. French : *Coing du Bengale*.—A tree growing in India the fruit of which is used medicinally. The fruit is about the size of an orange, with a hard woody rind, divided inside into ten or fifteen cells, containing a quantity of seeds and tenacious transparent pulp. It has a mild turpentine-like smell and taste. It contains tannic acid, and therefore acts as an astringent to the mucous membrane of the bowels, and is also slightly aperient; a union of qualities not found in other astringents. It is useful in chronic diarrhœa and dysentery. The decoction and the syrup are the two best forms for taking bael. The decoction is made as follows: Boil three ounces of the dried fruit, or one ounce and a half of the fresh fruit, discarding rind and seeds, in a pint of water until it evaporates to one half-pint. The dose is a wine-glassful for an adult three or four times daily. Syrup of bael is prepared by adding a wine-glassful of water, and a tea-spoonful of sugar, to the soft juicy part of half a moderate-sized bael, rejecting the stringy pieces. This may be taken three times a day.

5. **CASTOR OIL** (*Oleum Ricini*). Native name : *Rindee ka Tail*. French : *Huile de Ricin*.—Castor oil is prepared by pressure from the seeds of the castor-oil plant. It is a mild but efficient purgative, in doses of half an ounce to an ounce for adults, and from half a drachm to two drachms for

young children. As it rarely, when fresh and good, causes griping or irritation, it is to be preferred as a purgative for delicate persons and pregnant women, or for those labouring under disease of internal organs, forbidding the use of any more powerful cathartic. In ordinary constipation it is also a good aperient, for the dose, when repeated, may be gradually lessened; whereas other purgatives become less active the longer they are used, and increased quantities are necessary. The nauseous taste of castor oil may be much disguised by taking a little lemon juice into the mouth beforehand, or by taking it in peppermint water, or by mixing with an equal quantity of glycerine and flavouring with cinnamon. It is also used as an injection. Care should be taken that the oil used is fresh and good, as if at all rancid it becomes very acrimonious, causing much irritation, and sometimes troublesome diarrhœa. Castor oil enters into Recipe 106.

6. **CAMPHOR** (*Camphora*). Native name: *Kafoor*. French: *Camphre.*—Camphor is the concrete volatile oil of a tree growing in China and Japan. It occurs as white translucent masses of a crystalline structure, powerful odour, and pungent taste, followed by a sensation of cold. It has a stimulating effect on the system, also increasing the action of the skin, and thereby promoting perspiration. In larger doses it acts as a sedative antispasmodic. It has been employed in a large number of diseases, as hysteria, asthma, rheumatism, gout, cholera, cold in the head, hooping-cough, palpitations, but with doubtful efficacy in some. The dose of camphor for an adult is from two to three or four grains. Camphor enters into Recipes 5, 32.

Preparations of camphor, which may be made as required, are, CAMPHOR WATER (*Mistura Camphoræ*), and SPIRITS OF CAMPHOR (*Spiritus Camphoræ*). Camphor water is prepared by putting a few lumps of camphor into a bottle of distilled water, and allowing it to stand for a few hours. Camphor is but slightly soluble in water, so that the latter will only absorb a certain quantity of the former. Camphor water is not used as a medicine by itself, but it is useful in compounding medicines, when camphor water may be employed instead of plain water. By compounding medicines with camphor water, attention to the purity of the water is additionally secured. SPIRITS OF CAMPHOR is prepared by dissolving one drachm of camphor in one ounce and one drachm of rectified spirits of wine. Spirits of camphor, taken hourly in five drop doses, will, if used at the commencement, often arrest a cold in the head. It is also very useful in a variety of maladies when a stimulant is required, as in the latter stages of fever, in palpitation of the heart, in hooping-cough, in asthma, in hysteria, and in painful menstruation. It is also a good external application to sprains, bruises, and for chronic rheumatism. Applied frequently, and allowed to dry on sluggish boils, it will often check their progress. The dose for an adult is from ten to thirty minims in half a wine-glassful of water. When added to water, a white deposit forms.

7. **GRASS OIL** (*Andropogon citratum*). Native name: *Rosa ka Tail.*—This is the oil procured from the *Andropogon citratum* or 'Lemon Grass,' commonly cultivated in India, and in many parts growing wild. The oil is of a pale sherry colour, transparent, of a pungent taste, and lemon-like odour. It has been used in flatulent and spasmodic affections of the bowels. But its principal value is as an external application, either alone, or in combination with soap liniment, for chronic rheumatism, neuralgia, sprains, and other painful affections. The dose, when taken internally, is from three to six drops.

8. **IRON, SULPHATE OF** (*Ferri Sulphas*), commonly known as *Copperas* or *Green Vitriol.* Native name: *Hera Kusees.* French: *Sulfate de fer.*—It is made by subjecting iron wire to the action of dilute sulphuric acid, and evapora-

ting the solution to crystallisation, and has the appearance of green crystalline masses, with faint odour and ink-like taste. All the compounds of iron, though they differ in strength, possess nearly the same medicinal properties; but some are more astringent than others. The principal use of iron and its preparations is in those cases of debility accompanied by pallor, especially occurring in the female sex, and particularly in young girls. The red colour of the blood is due to a certain proportion of red corpuscles or granules which that fluid should contain, and which have iron as one of their chemical constituent parts. When these red corpuscles, which may be seen under the microscope, sink in quantity below the normal proportion, they are increased by giving iron as a medicine, and with their increase there is returning colour, health, and strength. Iron has also an influence, indirectly, over the monthly discharges of women; and is therefore often useful in irregularities of this kind. Iron may be usefully combined with quinine and other tonics. As a rule, before giving any preparation of iron, the bowels should be acted upon by purgative medicines. It should be recollected, that all preparations of iron colour the stools more or less black.

The sulphate of iron, besides possessing the ordinary action of iron salts, is also powerfully astringent; but it may be given in most cases when iron is indicated as a medicine. The dose for an adult is from two to five grains; for a child from a quarter to half a grain. It is sometimes used externally, as an application to weak indolent sores, as when there is a growth of flabby, pale-looking 'proud flesh,' on which it acts if applied in substance as an 'escharotic' or caustic; if used in solution it acts less strongly, or as a stimulant. Sulphate of iron, or copperas, is also used for disinfecting purposes (*vide* p. 608), and, in the absence of other disinfecting agents, it is advised that an ounce or more of the sulphate may be put into the chamber utensil on every occasion when used, in all infectious disorders, as cholera, typhoid fever, scarlet fever, small-pox, &c. Sulphate of iron enters into Recipes 3, 15, 23.

9. **POMEGRANATE** (*Punica Granatum*). Native name: *Anar*. French: *Ecorce de Grenadier*. Two parts of the pomegranate tree are used medicinally, viz. the root bark, and the dried rind of the fruit.—The dried root bark occurs in the form of quills or fragments of a greyish yellow colour externally, and yellow internally, without odour, but of an astringent slightly bitter taste. The principal uses of the root bark are as an anthelmintic for the destruction of tape-worm, as an astringent in diarrhœa and dysentery, and as a gargle for ulcerated mouth. For these purposes a decoction is made as follows. Take of fresh pomegranate root bark sliced two ounces; water two pints. Boil down to a pint and strain. For tape-worm two fluid ounces should be taken fasting, and the same quantity repeated every half-hour, until six doses have been taken; then an aperient should be used. Vomiting or nausea may occur after the first dose, but this should not prevent repetition. If used for dysentery, one ounce may be taken three times a day.

A decoction of the pomegranate rind is, however, a better remedy for dysentery or diarrhœa. The decoction of the rind should be made in the same manner as the decoction of the root, and the dose is one, to one and a half ounces, three times a day. A decoction made with milk instead of water is sometimes efficacious. The watery decoction is also a good astringent gargle for relaxed or sore throat. It may be rendered more palatable by the addition of cloves or other aromatics. These decoctions of pomegranate root bark and fruit rind appear especially efficacious in the bowel complaints of the natives of India.

10. **POTASH, NITRATE OF**, commonly called **SALTPETRE** (*Potassæ Nitras*). Native name: *Shora*. French: *Nitrate de Potasse*.—Nitrate of potash occurs in the shape of white crystalline masses, and is obtained by the solution and

evaporation of the impure nitrate of potash, which exists in a natural state in the soil of many parts of India. The nitrate of potash found in the bazaars is ordinarily not sufficiently pure for internal medicinal use, but it may be readily cleansed by dissolving it in hot water, straining, and setting the solution aside to crystallise. In its medicinal action nitrate of potash is cooling, acting both on the skin and kidneys, increasing perspiration and the flow of urine. It is thus very useful in fevers, in inflammatory affections, in common colds, in rheumatism, in bronchitis, and in many other diseased conditions. A good cooling drink for fever may be composed of nitre two drachms, the juice of two limes, and water two pints, with a little sugar. The dose for an adult is from eight to twenty grains; for a child from three to five. Nitrate of potash enters into Recipes 57, 71, 72, 73, 74.

11. **SENNA LEAVES** (*Sennæ Alexandrinæ Folia*). Native name: *Senna Mukkee.* French: *Feuilles de Séné.*—The senna plant grows in Eastern tropical Africa, in Arabia, and in most parts of India. The kind growing in Egypt is perhaps the best variety for medicinal use, as being less liable to gripe than other coarser species. The Alexandria senna leaf is about one inch in length, greyish green in colour, unequal at the base, of faint odour, and of sweetish taste. The leaf of the Indian senna (Tinnevelly) is nearly two inches long, acute in shape, also unequal at the base, green in colour, and of sweet taste. Senna is often adulterated with a very similar-looking leaf of the *Solenostemma Argel* (native name *Argel*). But these leaves are thicker and stiffer than senna; they are equal at the base, and bitterish in taste. They are purgative like senna, but their action is always attended with griping.

Senna is a safe and efficient purgative, well adapted for childhood, for old age, for pregnant females, and for delicate persons. But it is not so well adapted for nursing women, as it may render the milk purgative, and so cause colic in the child. The taste of senna may be much disguised by sweetening the infusion and adding milk, when it much resembles ordinary tea. Infusion of senna is made by steeping one ounce of senna and thirty grains of ginger in ten ounces of boiling water for one hour, and then straining. The dose for an adult is from one to two ounces. Infusion of senna with Epsom salts constitutes the once famous and much used 'black draught.' A simple, quickly prepared purgative for children may be made thus: Take of senna leaves a teaspoonful; boiling water four ounces. Infuse for ten minutes. Pour off into a teacup and sweeten with sugar, and let the child drink it off, fasting, in the morning. It may be used for a child of three or four years of age.

12. **STRAMONIUM** (*Dhatura Stramonium*). Native name: *Dhatura*. French: *Herbe de Stramoine.*—The leaves and stems of the dhatura—a plant growing in India—are used medicinally. The leaves are large, ovate, deeply cut, of a heavy odour, and of a mawkish, faintly bitter, nauseous taste. They are only recommended for smoking to check asthma (*vide* p. 59.) The seeds of the dhatura are poisonous (*vide* Poisoning by Dhatura, p. 521). A preparation of dhatura is also used as an antidote to poisoning by opium. But as this requires some time to prepare, it cannot be available except in hospitals or dispensaries where it is kept ready made.

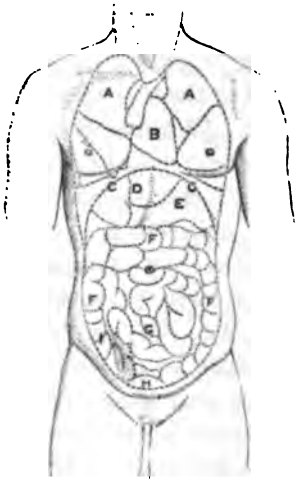
13. **SULPHUR** (*Sulphur Sublimatum*). Native name: *Ghunduk*. French: *Fleurs de Soufre.*—Sulphur employed in medicine is called flowers of sulphur, and is used both as an internal and an external agent. As an internal medicine it is laxative and purgative, being principally given to act on the bowels, when there are piles, or blotches or pimples on the skin. The dose for an adult is from twenty to sixty grains; for a child from two to five grains. Externally it enters into the composition of ointments, particularly for itch. Sulphur enters into Recipe 92.

CHAPTER II.

DISEASES.

INTRODUCTORY REMARKS.

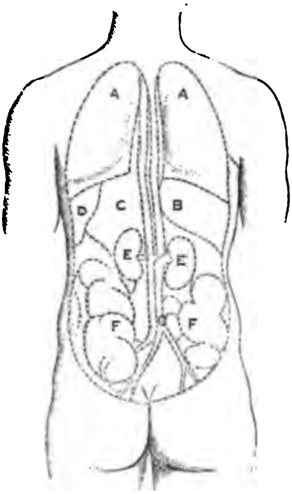
GREAT ignorance almost necessarily prevails respecting the locality or site within the body of most internal parts; a know-



THE FRONT OF THE BODY, SHOWING,

A A, The Lungs, one on each side.
B, The Heart enclosed in its bag, with the great blood-vessels proceeding from the upper part.
C C, The Diaphragm, or division between the chest, and the bowels, liver and stomach.
D, The Liver, partly covered by the Diaphragm.
E, The Stomach, partly covered by the Liver and Diaphragm.
F F, The Large Intestine, passing across the centre, down the left side, and up the right.
G, The Small Intestines.
H, The Bladder in the Male, and Womb in the Female.
I, The Cœcum.

ledge only to be thoroughly acquired by actual dissection, although some useful idea of the interior arrangement of organs may be obtained from plates. Therefore, before proceeding to describe the symptoms and treatment of diseases, the introduction of the accompanying rough diagrams, showing the position of the principal internal organs, appears desirable. An examination of the sketches will facilitate the formation of an opinion regarding the locality of any particular pain, so that the error of confounding symptoms arising from affections of one organ or part, with symptoms connected



THE BACK OF THE BODY, SHOWING,

A A, The Posterior part of the Lungs.
B, The Back part of the Liver.
C, The Stomach.
D, The Spleen.
The mark or line above B, C, D, is the Diaphragm, which is supposed to be lifted up in order to show the position of the three organs last named, as they appear at the back.
E E, The Kidneys.
F F, The Large Intestines ascending on the right side, descending on the left.
G, The course of the large artery and vein supplying all the organs with blood.

with affections of some other part, will be less likely to be made.

Certain facts connected with the *pulse*, with the *breathing* or *respiration*, with the *temperature of the body*, and with the *tongue*, should be borne in mind when attempting to discover the nature of, or to treat disease.

THE PULSE.—The pulse is caused by the beating of the vessels (called *arteries*, vide p. 437), conveying the blood from the heart to all parts of the body. For convenience it is generally felt at the wrists, but may be counted in the neck, or at the thigh, or wherever there is an artery near the surface of the body. The number of beats per minute, in the healthy state, varies according to age, but may be generally accepted as follows:—

At birth and till end of the first year of age	140	beats per minute
Infancy and till end of the third year	120	„
Childhood or till end of the sixth year	100	„
Youth or till end of the seventeenth year	90	„
Adult age or till end of the fiftieth year	75	„
Old age	70	„

The pulse may vary from this standard to some extent, and there are a few persons in whom the pulse may be extraordinarily slow, or the reverse, and this naturally, without deviation from health. But as a very general rule, if the pulse, without previous bodily exertion, (which always affects its action) is quicker by eight or ten beats than the standard, or a similar number of beats lower, there is something wrong, requiring investigation and treatment. If higher, there will be more or less of *feverishness* present; if lower, there will be a want of tone, or *vitality* below *par*.

The educated fingers of the physician also convey through the sense of touch, much information to be derived from the peculiar sensation afforded by the pulse, irrespective of the actual frequency of the beats. Thus, a *frequent* pulse, also feeling to the fingers *large and soft*, is indicative of the premonitory stages of febrile diseases. A *frequent, hard, and full* pulse accompanies inflammations. Hectic fever is characterised by a pulse increasing in frequency after meals, or in the evening. Disease of the heart is often signified by an irregular, jerking, or *intermittent* pulse. A weak, *thread-like* pulse occurs in rapidly exhausting diseases, as cholera, or as a consequence of bleeding or hæmorrhage.

Physicians now also judge of the pulse by a small delicate machine, called the *sphygmograph*, which traces the beatings of the pulse on paper.

THE BREATHING, or RESPIRATORY MOVEMENT.—Breathing is consequent on the expansion or contraction of the lungs, as the air passes into, and out from, those organs. There should be no obvious difference in the movements of the two sides of the chest. Breathing, like the pulse, is quickened by any bodily exertion, and also affected by mental excitement. The number of breaths taken by a healthy adult, in a state of repose both of body and mind, is about one for every four beats of the pulse, but varies in different people from fifteen to eighteen per minute. As with the pulse, there are persons occasionally met with, in whom the breathing may be either slower or quicker than the standard; but, as a general rule, deviation from the numbers given during a state of rest indicates disease. If higher, there will be generally present some malady either directly or indirectly affecting the lungs; if lower, there will be debility, or loss of vital power, or some nervous shock.

The breathing of children differs in some characteristics from that of adults. The bowels move more than in adults, and the breathing is much quicker, corresponding with the more rapid rate of the pulse (*vide* p. 32). Thus, a child up to two years of age breathes 35 times in a minute; from two years old to nine, 18 times during sleep, and about 23 when awake; from nine years to fifteen, 18 times during sleep, and 20 when awake.

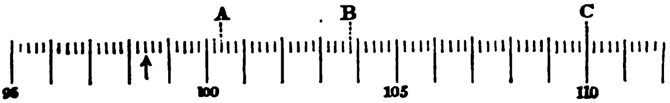
Indications of diseased conditions may also be frequently derived from the *smell of the breath.* Thus in diabetes, the breath has a faint, apple-like odour; in gastric disorders, especially of children, there is a sour smell; in some forms of dyspepsia, a smell resembling sulphuretted hydrogen; in bladder and kidney affections, an ammoniacal or urinous odour; from excess in spirituous liquors, a sour and vitriol-like smell.

THE TEMPERATURE OF THE BODY.—The bodily temperature, as affected in disease, is most instructive, and may be easily and readily tested by a thermometer specially constructed for the purpose, and which may be enclosed in a case, like a pencil or a pen, to prevent injury to the glass.

This instrument, known as the *clinical thermometer,* is self-registering. At the top of the ordinary column of mercury, there is a little piece which has been purposely detached, to serve as an *index.* Before taking the temperature, this index should be *gently* shaken down to about 96°. This may be done by holding the thermometer in the right hand, and then tapping that hand against the other. The constriction at the lower part of the instrument is to prevent the index being accidentally shaken into the bulb. When the mercury rises, it drives this index before it, and when the mercury falls, the index remains, showing by its *upper* surface the highest temperature reached. A clinical thermometer should always be self-registering, because, leaning over patients for the purpose of reading the scale while in contact with the body, is both inconvenient and disagreeable; and, in infectious diseases, may be very dangerous.

The manner in which the clinical thermometer is graduated, and the method of reading it off, are perfectly simple. The scale is shown below. Each of the longer lines indicates a degree, although, as matter of convenience, only every fifth degree is numbered. The spaces between the degrees are divided into fifths, by smaller lines. The little arrow, at

98·4° shows the natural temperature. If the index reached A, the temperature would be 100·4°; if to B, 103·8°; if to C, 110°. (It will be understood that the letters A B C are not found on the instrument, but are merely introduced in the sketch to facilitate explanation.)



CLINICAL THERMOMETER SCALE.

The temperature must not be taken by holding the instrument in the hand, as the heat of the palms varies considerably. The hands (of Natives especially) are often cold and moist, and would therefore show a lower degree of temperature than that of the body; while under some other conditions, as masked malarious fever (*vide* p. 217), and sometimes from dyspepsia, the palms burn, and would show a higher temperature. As the most convenient place, the thermometer is generally introduced into the arm-pits, and the arm should be held closely to the side, with the hand lying on the chest, so that the skin may perfectly surround the bulb of the instrument. Previously to using it, the thermometer should be slightly warmed, but not so much as to send the mercury above the natural temperature, of 98·4°. It should be kept in the position indicated for four or five minutes, and then the point to which the mercury has risen in the graduated tube should be read off. A thermometer should always be washed after being used, and in contagious diseases carbolic acid solution (Recipe 117) should be used for this purpose.

The average temperature of the surface of the human body in a condition of health and repose, may be stated at 98·4° Fahr. In the mouth it is 99·5°, while the temperature of the blood is 100°. A rising of the temperature of the surface of the body above 99·5°, or a falling below 97·3°, are sure signs of some kind of disease when such variations are persistent. The fall is significant of depressed vitality, either from rapidly exhausting diseases, or from long-continued maladies. The rise is indicative of fever, or of some disease accompanied by fever.

Each disease which runs a definite course, as scarlet fever, measles, small-pox, typhoid fever, rheumatic fever, rapid consumption, &c., has a characteristic and distinctive range of temperature. The observations with a clinical thermometer ought to be continued regularly, and taken at the same hours every day throughout the period of sickness. The most useful observations are those taken about eight in the morning, and in the evening. The sensations of heat and cold, as felt by patients, do not always coincide with such observations. In fever, cold and chilliness are often complained of when the body is really hotter than natural; and, *vice versâ*, the patient may feel hot when really cold. Hysteria, as is well known, often simulates inflammatory disease; but the temperature of hysterical patients is not increased, whereas that of persons suffering from inflammatory disease is always raised.

The Temperature of Children is usually a very little higher than that of adults; and a word of caution is necessary. In children, the temperature sometimes increases rapidly, probably from stomach derangement, when there is nothing serious the matter. Care, therefore, should be taken not to form a hasty conclusion of some serious disease, simply because the thermometer indicates much heat of surface, which often falls with equal rapidity.

RELATION OF THE PULSE, RESPIRATION, AND TEMPERATURE. —There is an ascertained relation between the pulse, respiration, and temperature of the body. An increase of temperature of one degree above the natural standard corresponds with an increase of the pulse of about ten beats *per* minute, and of two or three respirations *per* minute. Thus, if the natural pulse and temperature were respectively 75 beats in the minute, and 98·4°, while the number of respirations were 18, an elevation of the temperature to 100 would probably bring up the pulse to 90 or 95, and the respirations to about 23.

THE TONGUE.—This organ presents peculiarities in many maladies, of which the following are the principal:—

1. *A pale, white, flabby, broad, tremulous tongue, indented by the teeth,* denotes a weak, debilitated condition of system, and a watery state of the blood, as occurs in *anœmia.*

2. *A florid redness of the tongue* denotes *plethora,* or too full a condition of the system. When there are symptoms of dyspepsia present, it denotes a similar condition of the coats of the stomach.

3. *A livid or purplish colour of the tongue* occurs in various diseases of the chest, when there is obstruction to the circulation of blood in the lungs, preventing proper oxygenation of that fluid.

4. *A furred tongue* may not indicate disease, some persons always having it even when in good health, particularly on rising in the morning. Or a furred tongue may arise from local causes, as inflammation in the mouth, throat, or gums. When not referable to such causes, a furred tongue denotes some kind of febrile affection. Thus, it is covered with a cream-like fur in all severe inflammations, in acute rheumatism, and in fevers. In the more advanced stages of these diseases a thick brown or black coating collects, and the tongue is dry, parched, and cracked. When bright red points show through the fur (the tongue looking like a ripe strawberry, or as if sprinkled with cayenne pepper), it indicates scarlet fever, which has sometimes been first detected by this symptom. When jaundice is present, the tongue is often coloured yellow from bile. When during acute diseases, as fevers, the fur slowly clears away from the tip and edges of the tongue, and thins on the upper part, it denotes re-

covery. When the fur separates in flakes, leaving a smooth, red, glossy, and moist surface, it indicates some internal mischief, and lingering convalescence.

5. *A tongue with red edges furred in the middle*, and particularly if furred at the base, indicates dyspepsia. If *tremulous* when protruded from the mouth, it signifies intemperance, and is frequently seen in *delirium tremens.*

6. *A tongue furred in the centre, with red tip and edges*, is characteristic of hectic fever.

7. *Loss of the power of motion of the tongue*, or its being drawn aside when protruded, are bad symptoms in fevers or other acute disorders. These symptoms also accompany paralysis.

In addition to the indications of the condition of patients to be obtained from the *Pulse*, *Breathing*, *Temperature*, and *Tongue*, various other symptoms occur, having more or less reference to the existence of many diseases, of which they are the consequence or signs. These symptoms are:—1. *Loss of appetite.* 2. *Thirst.* 3. *Cough.* 4. *Delirium.* 5. *Giddiness.* 6. *Headache.* 7. *Palpitation.* 8. *Pain.* 9. *Sore throat.* 10. *Vomiting.* 11. *Fever.*

1. **LOSS OF APPETITE.**—Loss of appetite occurs in indigestion, fever, debility, and inflammations. The appetite is almost always lost in serious illness, and when good it is usually a sign that there is not much the matter. Exceptions to this rule are, during some forms of dyspepsia or indigestion, and in the disease called 'diabetes.'

2. **THIRST.**—Thirst is always an accompaniment of fevers, during which there is a craving for drink of an acid nature. Thirst also attends certain forms of dyspepsia, and is a prominent symptom of diabetes. In hydrophobia, although thirst may exist, there is an antipathy to fluids, and the patient is unable to swallow them.

3. **COUGH.**—Cough differs in its character according to the causes. Cough, sometimes attended with expectoration,

at others 'dry,' occurs in catarrh and influenza; also in consumption, when it is constant, with pain in the upper part of the chest, fever, and wasting of the body. In asthma, with difficulty of breathing coming on in fits, and generally in the night. In inflammation of the lungs, when the cough is followed by expectoration of a rusty colour. In hæmoptysis, when bright-looking blood is coughed up. In pleurisy, when it is attended with stabbing pain in the side. In the croup of children, when it has a brassy sound, and is connected with dangerous inflammation of the windpipe, often terminating in choking, or convulsions. In measles, with discharge from the nose, and other symptoms of a common cold. In inflammation of the bronchial tubes or passages leading to the lungs, when the cough is accompanied by tenacious expectoration like white of egg. In all these, and in various other maladies, cough is a distinguishing and prominent symptom.

4. **DELIRIUM.**—Delirium means temporary disorder of the mental faculties, which reveals itself in the language or actions of the patient. It may vary in degree, from slight wandering and incoherence, to the most complete and thorough derangement of the mind. Frequently the patient has some fixed delusion. A delirious patient may often be roused, so as to become temporarily coherent, or the delirium may be constant. Delirium usually tends to be worse at night, or it may only come on at that time. Delirium often occurs after a person has been drinking to excess, when it is generally accompanied by delusions of the mind, by trembling of the hands, and by restlessness and timidity of manner. Delirium also arises from the weakness following continued bleeding, or from almost any cause of great exhaustion, such as bad burns, wounds, or compound fractures. It is also often present during the course of fevers. Of this *febrile delirium* there are two forms—one occurring in the early stages of fever, often marked by great excitement, struggling, and displays of strength; the second form supervening in the latter

stages of fever, when the patient lies prostrate on his bed, utterly helpless, and muttering indistinctly—a condition known technically as *typhoid.* Lastly, delirium is a symptom of inflammation or other disease of the brain, when the delirium is characterised by great fury and violence.

In most instances of delirium the patient will require to be restrained, so as to prevent his getting out of bed or otherwise injuring himself. Persuasion and gentle force, a soothing manner, combined with watchfulness, firmness, and decision, are required from the attendants; for contradiction, and the exercise of authority, always excite opposition from the delirious. As a general rule, delirious people may be sufficiently restrained without mechanical means; but in exceptional cases, or when sufficient help cannot be obtained, the strait-waistcoat may be employed.

The strait-waistcoat is made of strong cotton cloth, and should extend from the neck to below the waist. It should have no opening in front, but tie down the back with tapes. The sleeves should be long enough to extend half a foot beyond the hands, and should be closed at the extremities, round which a cord or strong tape is tied. The waistcoat should also be furnished with shoulder-straps. When used, the tapes should be tied down the back, and the cords or tapes attached to the sleeves may be tied to the foot of the bed, if the patient's hands are required by his sides; or to the opposite side of the bed, if the hands are crossed over the body. Strong tapes, or rope, passed through the shoulder straps, and tied to the bed, effectually secure the patient's body.

5. **GIDDINESS.** — This sensation is often described as 'dizziness,' or 'swimmings.' It varies much in intensity, and may be frequent or occasional. In many cases it is only felt on movement, or in certain positions, as when the head is hanging down. Giddiness may occur as a symptom of simple weakness or debility; or it may be connected with indigestion, or it may occur during fever; also from tendency to epilepsy or apoplexy. It may also arise from indulgence in tobacco, from excesses of various kinds, and from too much mental work.

6. **HEADACHE.**—Headache is suggestive first of indiges-

tion or deranged liver, or of nervousness, weakness, or overwork. Throbbing or acute pain may occur either from *anæmia* or weakness, or from fever and inflammatory affections. Dull pain is more distinctive of dyspepsia or indigestion. When headache recurs at fixed periods or in one brow, it is often due to malaria. Headache also occurs from various fevers, from gout, and sometimes as a rheumatic affection of the scalp. It may also be a premonitory symptom of apoplexy.

7. **PALPITATION OF THE HEART.**—Palpitations are common as a symptom and effect of indigestion, also from weakness and hysteria. Palpitation also occurs from disease of the heart, but is comparatively rare from this cause (*vide* p. 251).

8. **PAIN.**—There are two great distinctive pains, viz. *inflammatory* and *irritative.* Inflammatory pain is *increased* by pressure; irritative or spasmodic pain is generally *relieved* by pressure. Thus the pain of inflammation of the bowels may be distinguished from that of colic, gravel, or gall-stones; the first by being *increased,* the latter by being *relieved,* by pressure on the bowels. Whenever pain is dangerous there is generally fever. Pain of the chest may arise from cold, consumption, inflammation, rheumatism, indigestion. Pain in the joints suggests rheumatism, gout, scrofulous or other inflammation, or hysteria. Pain in the stomach or bowels indicates wind, acidity, dyspepsia, colic; or, if long continued and increased by pressure, inflammation. Pain in the back and limbs ushers in fevers and small-pox; pains all over the body mark simple cold, influenza, or dengue fever; pain in the face or other parts of the body, when periodic and without fever, is generally neuralgic.

9. **SORE THROAT.**—Sore throat occurs as a symptom of cold, quinsy, diphtheria, scarlet fever, mumps, consumption, syphilis, inflammation of the windpipe, croup, thrush, small-pox, and excessive use of the voice.

10. **VOMITING.**—Vomiting is an inverted action of the stomach, accompanied by nausea and faintness. It is an ordinary symptom of disorders of the stomach and bowels, as cough marks affections of the chest. It may be caused by unwholesome food and by intemperance. It often occurs at the onset of fevers, and especially at the commencement of eruptive fevers, as small-pox and measles. It is also a symptom of rupture or 'broken belly,' of dyspepsia, of colic, of gravel, and of cholera. It is a feature of inflammation of almost any organ within the belly, particularly of affections of the stomach; it also occurs from the violence of hooping-cough; it may be produced by poisonous agents, as arsenic; it occurs in sea-sickness, and is often very troublesome to pregnant women. The colour, smell, and taste of vomited material is often very instructive and characteristic. Thus, in *cholera* the fluid vomited is whitish, like rice-water. In *hæmatemesis*, or bleeding from the stomach, it is black, like coffee-grounds. In certain diseases implicating the *urinary* organs, the odour is ammoniacal. When there is *stoppage of the bowels*, fæcal matter is often vomited. When *bile* is vomited, the taste is strongly acid and bitter, and the colour yellowish. In some forms of *dyspepsia*, fluid, looking and tasting like sour water, is brought up.

11. **FEVER.**—The condition comprehended in the term fever is characterised by high temperature, by quick pulse, by increased respiration, by restlessness, by headache, and by scanty high-coloured urine. *First*: Fever may occur as a simple febrile attack, apparently unconnected with any other malady, or as the effect of cold or indigestion. *Secondly*: Fever may be the consequence, and a symptom of, some other malady. In the description of diseases, it will be found that very many are characterised by fever as a symptom or a necessary part of their progress. Thus all inflammations are attended with fever, which in its symptoms differs little from simple fever, occurring as the effects of cold, or of stomach

derangements. *Thirdly*: Fever may occur as the result of specific poisons: as malaria; the poisons generated in foul drains and sewers; and from overcrowding.

Many important diseases evidence their presence by certain characteristic symptoms accompanying their initiatory fever. Thus, pain in the back with fever should lead us to suspect small-pox or typhus; headache with fever points also to typhus; headache and diarrhœa with fever indicates typhoid; cold in the head with fever will probably terminate in measles; a sore throat and fever may develope into scarlet fever, or diphtheria.

The amount of fever present is best judged of by the temperature (*vide* p. 34). When the temperature reaches 103° the fever is moderately severe; at 104° it is severe; at 105° very severe; at 106° dangerous; at 107° usually fatal.

Although the foregoing symptoms are usually prominent as indications of the diseases to which they point, it should be understood that disease differs in different people, just as the action of medicines has been shown to vary (*vide* p. 7). Sex, habit, age, climate, temperament, race, and idiosyncrasy, exert influences which tend to render similar diseases in different people varied in their characteristics; sometimes one class of symptoms being more prominent, sometimes another. In tropical climates the great characteristics are, the tendency to a remittent form of the accompanying fever, and to rapid failure of the vital powers. From the above it will be evident that the aim of the physician must be the treatment of each individual case in accordance with the peculiar symptoms presenting; and it should be equally evident that the popular idea of *this* medicine for *that* disease must be erroneous, and hence that *patent* medicines vaunted to cure all, or even many maladies in all persons, *must* be unequal to so desirable a result.

DISEASES.

ABSCESS.—This term is commonly applied to a painful and inflamed swelling, which, after a certain course—in most instances very rapid, in others slow and indolent—terminates in the discharge of a yellowish creamy fluid, called *pus*, or matter. Abscess may present in almost any part of the body; a gumboil, a whitlow, and the large and painful swelling sometimes formed in the female breast during suckling, are all instances of abscess. Though commonly recognised as an affection of the surface of the body, abscess may attack some important internal organ, as the brain or liver. Abscess differs from boils in not containing dead flesh, or a central hard part, commonly called the 'core.' Abscess often arises from local injury, as blows, or from thorns or other foreign bodies introduced beneath the skin; but it may originate from cold, or without any assignable cause, or be connected with scorbutic, scrofulous, syphilitic, or other morbid or debilitated conditions. In persons who have subsisted for some time on bad or insufficient food, or who are debilitated from any cause, a very slight injury, as a bruise or cut, may result in inflammation, and in the formation of matter.

In considering the symptoms of the affection it is necessary to *distinguish those swellings which are much inflamed, very painful, and rapid in their course, from those which, on the other hand, grow slowly and gently, and with little, if any, redness of the skin.* The symptoms of the first variety of the malady, or of an *acute inflammatory abscess*, are these: A swelling becoming in the course of two or three days, or often in a few hours, very hot, painful, and tender, the skin assuming a stretched appearance, with a bright red hue most intense at the centre. As the swelling increases, the pain becomes more severe, and has a characteristic *throbbing* or pulsating peculiarity. In the further course of the affection, the skin and subjacent soft parts round the inflamed swelling become 'puffy,' and retain for a short time the mark made by pressure with the finger. As the centre of the abscess becomes more painful and inflamed it loses its hardness, and gradually 'ripens,' or breaks down into matter. The skin at this part becomes thinner, more prominent, and loses its bright red colour, presenting the well-known sign of 'pointing,' in the shape of a light yellow or bluish spot. The whole swelling is now soft, and by making gentle pressure, alternately with the fingers of each hand, the sensation may be generally felt, of a small wave of fluid moved from side to side. The abscess finally bursts, and discharges the contained matter through one or more small apertures formed in the thinnest and most distended portion of the skin. The discharge at first is profuse, and consists of a thick yellowish fluid; as the cavity of the abscess contracts and closes, it diminishes and becomes clear and thin. During the progress of healing, the superficial layers of skin about the seat of the abscess peel off. The progress of an abscess towards ripening is usually accompanied by constitutional symptoms, proportional in severity to the size of the swelling, and the amount of inflammation. These symptoms are, shivering, feverishness, headache, and often pains in the back and joints. *Shivering*, particularly, is regarded as indicating the commencement of the formation of matter. When abscesses form deeply below the surface of the skin, especially where the skin is hard, as on the heel; or when they form beneath tendons and ligaments, as in one form of whitlow (*vide* p. 407), the suffering is more intense, the matter longer in coming to the surface, the parts implicated more important, and professional assistance oftener required.

In the second variety of abscess the symptoms are much less severe. The feverishness and headache are slight, and the swelling increases in size very slowly, and with little pain or tenderness. The skin remains for a long time free from inflammation or puffiness, until the matter has collected in such quantity as to cause its distension and attenuation. There is then a slight blush or redness, and the matter is discharged through a small opening, as in acute abscess. This variety is known by the name of *chronic* or 'cold' abscess. Although the commencement of this form of abscess is attended with less fever, the termination of the malady is not so characterised. *Chronic abscesses* are generally large, and when the discharge is profuse and long-continued, hectic fever (*vide* p. 223) is usually excited.

Treatment.—When abscess occurs without any irritating cause, it will mostly depend on some morbid state of the constitution, and, if constipation is present, will require purgatives, and Recipes 1 and 2 may be taken. In abscess arising from injury, all irritating causes, as thorns or splinters, should if possible be removed, and then, if the person is in good health, the parts will usually heal without the aid of medicine. In the early stage of a painful inflamed swelling, an attempt may be made to prevent the formation of matter by applying lint, or a piece of linen wet with cold water, or with cold vinegar and water (one-third vinegar), or by using the cold lotion (Recipe 83), which is a preferable application; by keeping the affected part in perfect rest; and by prohibiting the consumption of meat, beer, or spirits. If the patient, however, has had *shivering*, or complains of *throbbing* pain about the swelling, measures calculated to further the *ripening* and *pointing* of the abscess should be adopted. Local applications in the shape of hot poultices (Recipes 78, 79, 80)—of the variety, bread, bran, or linseed meal, most easily procurable—should be used, and the poultice should be changed every four or five hours, or as soon as it feels cool; or, as is sometimes more convenient for small abscesses, warm-water dressing (Recipe 85), or spongio-piline, wet with hot water, may be substituted. Or the water-dressing may be used during the day, and a poultice applied at night. At each change of poultice the part should be well bathed with hot water. Nourishing and easily digestible food, as soups, beef tea, eggs, and light puddings, should be allowed, a liberal diet being more especially required by feeble or debilitated persons; while in most cases a small quantity of wine or malt liquor may be given without hesitation. The possibility of a scorbutic taint in the constitution should also be recollected, and if the gums, being spongy or inclined to bleed, show evidence of scurvy; or, if the person has been in a locality where fresh vegetables could not be procured, such vegetables or other anti-scorbutic remedies (*vide Scurvy*, p. 327) should be taken. If the constitution of the patient is weakened from any other cause, tonics will also be required, and quinine (Recipes 17, 18) may be used. A prolonged sojourn in a close room is to be avoided, as fresh air will assist the hot applications, the nourishing diet, and the tonics recommended above, in favouring the rapid formation and discharge of matter, and the ultimate contraction and healing of the abscess.

After a variable time, generally two or three days, matter having formed, the abscess becomes prominent or pointed; then the skin at the thinnest, or at the most prominent part, should be punctured with a clean, sharp lancet, when the matter will usually flow out, often with a spurt. The part should never be roughly squeezed in order to get the matter out quickly, for it is a maxim in surgery that 'To a diseased part a touch is a bruise.' Having allowed as much matter to flow as will easily escape, if it seems there is more left, put a thin strip of oiled lint into the aperture, and direct the patient to remove it in an hour's time, and with soft sponge and warm water to press away as much more matter as can be expelled without pain; afterwards poultices should be again employed until all discharge ceases.

When opening an abscess no plunge should be made, which causes unnecessary alarm. Neither should the lancet be used slowly, which causes prolonged pain. The puncture should be made with confidence, decision, and a moderate degree of rapidity; and if the aperture required is larger than the shoulder of the lancet used (*vide* p. 429), it should be made the necessary length by cutting *outwards*, when withdrawing the instrument.

Abscesses are liable to terminate in *sinus* or *fistula*; which means an unsound condition of the parts beneath the skin. This often results from too small an opening for the exit of the matter, which becomes pent up, and burrows under the skin. Or, it may arise from want of care in dressing the part; or, from an improper position assumed by the patient. *Sinus* is to be prevented by making the opening sufficiently large; by keeping the opening in such a dependent position, that the matter may easily flow out; by not allowing the opening to close up too soon, which is to be effected by the insertion of a probe daily, through the whole length of the orifice; and by care in dressing the part, when it is often necessary to place and secure a small pad of lint over any position where there is a tendency of the matter to gravitate, or 'bag.'

When abscess occurs in the neck, it is important to open it early, and the puncture should be made *longitudinally* (or in a direction with lines or folds of the skin), and not horizontally, in order to avoid a large scar. In the female breast, it usually prevents much suffering, to make a puncture as soon as the presence of matter is ascertained; and to avoid a scar, the puncture should be made from the nipple towards the circumference, *not* across the breast. A similar caution applies to abscess or *bubo*, in the groin, where the puncture should be made in the direction of the natural skin folds. When abscesses are situated near the *anus*, the use of the lancet should not be deferred for a single hour after discovery, or the danger of a fistula resulting will be increased (*vide Fistula-in-ano*, p. 225). An abscess of the *perinæum* (*vide* p. 367) and a *whitlow* (*vide* p. 408) should also be opened early.

When treating abscess of any description, if the symptoms described under the heading *Anæmia* (p. 50) are present, some preparation of iron will be required. Iron is not one of the medicines contained in the case designed to accompany this edition of the Manual, but Recipe 21 or 22 should be procured from a chemist, or, if this cannot be done, sulphate of iron (Hindustanee term *Hera-kusees*, *vide* p. 25) may be obtained from the bazaar, three grains of which may be taken in a little water three times a day. Similarly, if there are indications of a scrofulous condition, or of hectic fever, which is more likely to be the case during the progress of chronic or 'cold' abscess, the remedies mentioned under the head *Scrofula* (p. 326) should be obtained, viz. cod-liver oil, and iodine with iron (Recipe 26); or, the treatment required for *hectic fever* (p. 223) should be employed.

ACIDITY.—Acidity of the stomach is a frequent symptom of indigestion, and is often an accompaniment of chronic rheumatism, and of gout. It arises from articles of food taken being converted, from error of digestion, into acids of various kinds. It is frequently attended by headache, flatulence, heartburn, weight, or tendency to vomit, and loss of appetite, and it generally causes pain, either at the pit of the stomach, or behind the ribs on the left side, or higher up in the middle of the chest. The treatment consists in avoiding those articles of diet which produce acidity, as unripe fruit, cabbage, acid wines, sugar, butter, and food containing much starch, as rice, potatoes, and arrowroot; and in taking medicines which will correct acidity. Among the best of these is citrate of magnesia, which may be taken in teaspoonful doses dissolved in two or three ounces of water, to which a grain or two of quinine has been added; or forty minims of sal volatile, with a similar quantity of water and quinine. Effervescing draughts, aërated water, or draughts of simple cold water are often very beneficial. If the bowels are costive, sulphate of soda may be taken as a laxative (Recipe 2).

Acidity of the stomach in children is always combined with *flatulence*, for the treatment of which *vide* p. 228.

[Other antacid medicines which may be procured if the above do not relieve, are, bicarbonate of soda, bicarbonate of potash, and bicarbonate of magnesia, each of which may be taken in from twenty to thirty grain doses. When costiveness accompanies acidity, from half a drachm to a drachm of Gregory's powder (Recipe 16) often proves very efficacious. When acidity occurs without disordered bowels, five drops of tincture of nux vomica, three times a day, before food, often gives relief. There is also a form of acidity depending on deficient secretion of gastric juice, and characterised by eructations like rotten egg, which is only to be checked by the administration of acids, as Recipe 24 and 54, which should be taken after meals. But it must be recollected that, in the great majority of cases, acidity of the stomach is a symptom of dyspepsia, and that all medicines are only palliative. The great means of cure are careful dieting and moderate exercise.]

ANÆMIA.—Anæmia is an impoverished state of the blood causing a peculiar condition of debility, and mostly affecting females. The blood in its normal or healthy condition contains a large number of red globules, which may be seen under the microscope, and which give the blood its colour, and impart the natural appearance to the white skin. But in anæmia these red globules are deficient in proportion, and there is also an excess of water. The skin in consequence becomes very pale, and often assumes a sallow green appearance, while the eyes are encircled by a dark ring. The whites of the eyes also become pearl-coloured. The lining membrane of the eyelids and the lips, instead of being rosy, are of a pale pink colour, and the tongue loses its redness. The patient is languid and indisposed for exertion. The appetite is variable and depraved, and such substances as lime, chalk, or slate-pencil are sometimes greedily eaten. The body is chilly, and the extremities cold. There is also headache, usually felt about the temples, and at the top of the head, and often described as throbbing, and as if something were pressing down and out. It is generally relieved by taking food, and by lying down, and aggravated by the erect posture, and by exertion. A tendency to fainting, palpitation of the heart, pain in the left side, often extending to the loins, or hips, and swelling of the feet, are very frequent symptoms. Vomiting after food may also occur. The bowels are often torpid, the urine pale and copious, and the patient is generally hysterical. *Anæmia* is very frequently connected with the first appearance of the monthly discharge of females, or with disorder of that function (*vide Amenorrhœa*, p. 409), when it is often commonly called *Green Sickness*, or *Chlorosis*. It is also frequently seen in women who have lived poorly, or under bad general sanitary, or bad individual hygienic conditions, or who suffer from whites or piles, or who are debilitated by climate, or who, having had several children quickly, are suffering from over-nursing (*vide* p. 670).

In males a very similar condition is sometimes brought on by worry and anxiety, by exhausting employments, particularly from night-work, or when sufficient time for rest, or refreshment and sleep, has not been allowed, or after prolonged exposure to malaria.

Treatment.—The treatment consists of moderate exercise every day, and of free ventilation of the living, sleeping, or working apartments. The diet should be nourishing, and a moderate amount of animal food should be taken; but anything causing indigestion should be avoided. Stimulants should be resorted to sparingly, a small allowance of malt liquor being the most advisable. Cold or tepid bathing is often of great service, and change of air and scene is always useful. Tonic medicines, especially iron, are of great value. The red globules of the blood contain iron, and iron given as a medicine tends to increase their quantity. It must, however, be understood, that anæmia is dependent as much on scanty absorption of iron into the system as on a deficiency of the supply of iron; hence, unless combined with well regulated sanitary conditions, as mentioned above, iron will do little good. These being attended to, sulphate of iron, called *Hera-kusees*, may be obtained of good quality in most Indian bazaars, of which three grains may be taken in a couple of ounces of water three times daily. Sulphate of iron will be found especially useful when the tongue is flabby, pale, broad, and indented by the teeth. It should be recollected that this medicine, like all preparations of iron, will colour the motions more or less black, so that this appearance need not excite alarm. Should the bowels be confined, citrate of magnesia may be used. If disorder of the monthly flow exists, the treatment recommended for *amenorrhœa* should be pursued (*vide* p. 409).

[Better medicines for anæmia are, however, the iron mixtures (Recipes 22, 25): No. 25 when delayed menstruation exists; Recipe 22 when there is not this complication. Or for simple uncomplicated anæmia, iron lozenges prepared by the chemist, containing one grain of iron each, may be substituted for the iron mixture by those disliking the taste of the latter. If constipation exists, it is also desirable to use aloetic laxatives, as Recipe 13, if the motions are light in colour, or it is supposed the liver is not acting freely; Recipe 15 if there is no suspicion of inactive liver. As mentioned above, all preparations of iron colour the stools more or less black, so that dark motions cannot be always accepted as indication of the liver acting. When the disease is long continued, a visit to the mineral springs, or, at least, drinking the mineral waters containing iron, is often beneficial.

APOPLEXY.—The disease makes its attack in one of three ways.

1st, suddenly, the patient falling down without warning, as if from a blow. In this *first* form of the disease, the patient falls to the ground, deprived of sense and motion, and lies like a person in a deep sleep; the face flushed, the breathing laboured, and the pulse full and slow. The pupils of the eyes may be dilated, or one may be dilated and the other contracted. The mouth may be drawn to one side, and there may be convulsions, also often confined to one side of the body.

2ndly, and more usually, after *premonitory* symptoms or ‘warnings,’ which may be of days’, weeks’, or even months’ duration. Such *premonitory* symptoms may be giddiness, especially on stooping, nausea, sickness, and fainty feelings, headache, a sense of pressure, constriction or heat in the head, constipation, scanty urine, confusion of ideas, faltering speech, flushing of the face, bleeding from the nose, flashes of light in the eyes, double vision, noises in the ears, numbness of the extremities, or loss of memory. In this *second* form of the malady, the first symptoms of the actual fit are more like those of common fainting, with feeble pulse, sighing respiration, cold surface, and attempts to vomit.

3rdly, with sudden paralysis of one side of the body, or of one leg only. In this *third* form, the paralysed limb is dragged, cannot be used freely, and the mouth is probably drawn to one side, with confusion of mind, or thick, or impaired speech, so that the person endeavours to express himself by signs.

In whatever way it may commence, the fit is usually ultimately characterised by insensibility, accompanied by slow, noisy, *puffing* breathing, and frothy saliva about the mouth. The teeth are clenched, and the person is unable to swallow; often, fluids put into the mouth run out at the corners; or, swallowing is performed with difficulty; the countenance becomes flushed or livid; the eyes are dull and glassy, and the pupils of the eyes are contracted, or one remains dilated and the other contracted; the mouth is drawn to one side; the limbs are motionless and rigid, but sometimes convulsed, or the latter conditions present only on one side of the body. The extremities are cold, and the body is bathed in cold sweat; the bowels are either obstinately confined, or motions may be passed involuntarily. The urine may also be passed involuntarily, or retained till the bladder is full, when it dribbles away. The pulse, at first generally slow, becomes quicker, fuller, and stronger, as the system recovers from the first shock, although it often remains less frequent than natural and may be irregular.

The duration of an apoplectic fit varies from two to three hours, to as many days. It may terminate by gradually passing off, leaving the person *apparently* little the worse, or it may terminate in incomplete recovery, the mind remaining impaired, or some part of the body being paralysed; or, the person not regaining sensibility, the increasing stupor may end in death.

The *predisposing* causes of apoplexy are—age, from the fiftieth to the eightieth year; sex, men being more liable to it than women; make of body, combining a short thick neck, large chest, florid complexion and stoutness; hereditary tendency, the malady often running in families; indulgence in eating and drinking; and disease of the heart. The *exciting* or *immediate* causes are—violent exercise; straining, as in lifting heavy weights, or as at stool; sudden mental emotions, and violent passions; intense heat; overloading the stomach; tight stocks round the neck; the sudden cessation of any accustomed discharge, as from piles.

The immediate attack of apoplexy depends on the sudden escape of blood beneath the skull on the surface of the brain, or on or between its investing membranes. Or otherwise, on simply fulness and distension of the vessels of the brain, without actual rupture and escape of blood. Or thirdly, on escape of watery fluid, the result of such congestion or fulness, into the cavities of the brain.

Apoplexy requires to be distinguished from the effects of spirituous liquors, and from the results of narcotic poisons as opium, and from epilepsy.

Apoplexy is best distinguished from the effects of spirituous liquors: 1st, by the history of the case; 2ndly, by the smell of liquor in the person's breath—although it must be recollected that this is not a certain sign that the patient has been drinking, for someone may, in mistaken kindness, have given the person struck by apoplexy some kind of liquor; 3rdly, in the 'drunken fit' the size of the pupils is equal, while in apoplexy one is often contracted, and the other dilated; 4thly, the person 'dead drunk,' as it is termed, may generally be roused, when he babbles incoherently—from apoplexy the person cannot be roused; 5thly, if the patient be carefully watched, any movements which occur will be found to be restricted to one side of the body in apoplexy, while movements occur on both sides in drunkenness.

Apoplexy is to be distinguished from poisoning by opium: 1st, by the history of the case; 2ndly, by the absence or presence of the smell of opium in the breath; 3rdly, by the equal contraction of both pupils caused by opium; 4thly, in apoplexy the patient cannot be roused, while in opium poisoning he may generally be roused for a moment, although he does not then babble as in drunkenness, but lapses at once into sleep again; 5thly, in apoplexy what are called 'reflex actions' may usually be induced; that is, if the patient's foot or leg is pinched or tickled, there will be an effort made to draw the foot away: in opium poisoning such movements cannot ordinarily be induced, the patient apparently not feeling pinching or tickling.

Apoplexy is known from epilepsy by the presence of *puffing* breathing, which is absent in the latter malady. In epilepsy also there is struggling of the limbs; the eyes are turned up under the lids, so that the whites only are visible; and the person generally falls down with a loud cry, none of which are symptoms of apoplexy.

Treatment.—The first thing to be done in all cases, is to loosen the patient's neckerchief and shirt collar, to *slightly* raise his head, and give free access of air. The forehead should be bathed with cold water, or, if available, a bladder of pounded ice should be applied, the feet should be put in hot water, and mustard poultices should be applied to the calves. But while this is being done, the patient should be kept in the horizontal posture, which may be effected by drawing him down towards the foot of the bed, until, the knees being bent, the legs hang over. The feet should be kept in hot water about ten minutes, after which bottles filled with hot water should be applied to them; the mustard poultices being allowed to remain on the calves for an hour. Perfect quiet should be maintained, and the blinds should be drawn down, so as not to let too much light into the room, and only one or two people should be allowed by the bedside. Bleeding, formerly the rule in such cases, should not be undertaken except under medical advice. As soon as the patient can swallow, one ounce of sulphate of soda dissolved in three ounces of water may be given as a purgative. But until the patient is able to swallow, no attempt should be made to induce him to take either medicines or anything else. In all cases, an assafœtida injection (Recipe 105) should be given as soon as possible. If the person lies insensible more than six or seven hours, without making water, the catheter should be used (*vide* p. 430). If the water is retained till the bladder is full, and then *dribbles* away, it is a sign that the water should have been drawn off before.

If the fit happens *immediately* after a full meal, the patient may make attempts to vomit; and if this is the case, the action of vomiting may be assisted by tickling the throat with a feather. But if there is no spontaneous attempt to vomit, emetics and all excitants of vomiting must be avoided, as the action of vomiting may increase the determination of blood to the head, and therefore do mischief.

After a variable time, the patient generally recovers from a first, or even second apoplectic fit, but it is then found he has lost the use of the arm or the leg, or of one side of the body. The power of speech may also be lost, and the muscles of the face may be affected.

[In the treatment of apoplexy, it is always desirable to act upon the bowels as soon as possible, but as the patient cannot, in the majority of cases, swallow, it will be desirable to obtain from the chemist's a little croton oil, of which *two or three drops* may be placed on the back of the patient's tongue with a feather. A blister should also be obtained and applied to the back of the neck. If the croton oil does not operate freely, Recipe 11, followed in three hours by Recipe 5, should be given, and the latter should be repeated every six hours until the bowels have been freely moved. An enema (Recipe 106) should also be injected.]

Prevention of Apoplexy.—Temperate and active habits, with moderation in food and drink, may save many a one from apoplexy, or at least postpone the seizure; and the 'warnings,' noted (*vide* p. 52) as frequently preceding one form of fit, should never be neglected. Although any one of the symptoms detailed, occurring singly, would probably be of minor significance, a combination of them, in a person who is a likely subject for apoplexy, may be regarded as a sure precursor of an attack, unless abstinence, and preventive remedies in the shape of laxative medicines, are adopted.

When convalescence commences, the bowels should be regulated, and a generous or low diet must be given, according to the condition of the patient. As a general rule, the latter will be required; and in some instances, nothing but vegetables to eat, and milk and water to drink, will be advisable. All strong medicines, excitement, and mental occupation should be avoided.

ASTHMA.—Asthma signifies attacks of difficulty of breathing, of a spasmodic character, occurring in paroxysms. A fit of asthma generally comes on in the night, and the seizure is often preceded by languor, flatulency, headache, heaviness over the eyes, sickness, pale urine, disturbed rest, and a sense of oppression about the heart. But it often also comes on suddenly, without such warnings, the patient waking from his first and deepest sleep, labouring for breath. When the fit is fully formed, there is intense difficulty of respiration, the patient sitting up in bed, or standing holding on to a table or chair, breathing hard with a whizzing noise. The face becomes livid or bluish, the eyes look prominent, the body is covered with cold perspiration, suffocation appears impending, and the sufferer often struggles to the window, which he desires may be open. After an hour or longer the attack subsides, accompanied by the expectoration of little pellets of thick phlegm or mucus.

Sometimes asthma occurs more especially during the hay harvest, and has been called *hay asthma*. It is then allied to the condition described under *catarrh* as *spasmodic sneezing*, and is probably due to some subtle aroma in the atmosphere (*vide* p. 99).

The length of time between successive fits of asthma varies much, during which the person, if he takes care, usually enjoys fairly good health. Some persons are peculiarly liable to asthma, and their appearance is characterised by thinness, round shoulders, anxious expression of countenance, hollow cheeks, rather hoarse voice, and habitual slight cough.

Treatment.—During a paroxysm of asthma the patient should be kept sitting up, and the spine may be well rubbed with soap liniment. Pressure with the thumbs, on the large (axillary) arteries of the arms, as they issue from the chest, (*vide* p. 439) has been found to lessen the difficulty of breathing. To plethoric persons ipecacuanha wine should be given in twenty-drop doses, in an ounce of water, every two hours. For weaker persons, camphorated tincture of opium, combined with a stimulant, as ammonia (Recipe 30), is more advisable. If the attack has followed an injudicious meal, such as a late supper or dinner, a mustard emetic (Recipe 77) should be administered. If the attack has been preceded by constipation, sulphate of soda (Recipe 2) should be taken as a purgative. Sometimes a glass of hot brandy and water will relieve a fit of asthma; at other times a cup of strong coffee, without sugar or milk. Many patients are benefited by chloroform, half a drachm of which may be placed on a handkerchief, which should be held two or three inches from the nose and mouth. This may be repeated three or four times at intervals of a quarter of an hour. Other easily procurable and popular remedies are: ten grains of powdered alum placed on the tongue; a full dose, as twenty grains of chloral; the inhalation of the fumes from burning straw or blotting paper, previously soaked in strong solution of saltpetre, and dried ready for burning. All these means may be successively tried, for what does not benefit one, may do o another; and what does not ease during one attack, ford relief at another time.

oking stramonium leaves sometimes relieves asthma, lly if the smoking is commenced before the fit is fully . The *Dhatura Stramonium* plant grows in various f India, and especially in the Himalaya, and may be ed in the bazaars under the native name. 'Dhatura.' en to thirty grains of the dried leaves may be smoked mmon pipe, which will sometimes, if taken in time, t an expected paroxysm. Or from one to three grains dry leaves may be taken internally. In both cases it able to commence with the smaller doses, and gradually ease them as required. Another way of using the nium is by puffing the fumes into an inverted tumbler, when full, should be placed over the patient's mouth, ould inhale the contents by a deep breath. This often excites cough, but is occasionally very beneficial. atment, however, is equally important during the ls between the fits; and it is found by experience that ore is to be done for asthmatic patients by careful management than in any other direction. However e person may feel during the intervals between the should never exceed in diet. Breakfast, which should chief meal, should consist of an egg, or chop, or cold ; tea is better than coffee, and milk and water better ther. Mutton ought to be the staple diet, with green les and potatoes in moderation. Sausages, kidneys, led beef, pickles, toasted cheese, should never be eaten. ry should be used, but stewed fruits or light pudding generally taken with impunity. Water, or very randy and water, is the best drink, and there should heese or desserts. Late dinners are to be avoided, asthmatic should never eat as much as he can. A subject to asthma cannot eat and drink with the ty of other people, and it is only by the exercise of self-denial in this respect, that he will be able to live in comparative ease and comfort. Similarly, he should avoid excitement, fits often arising from mental emotions.

[If the above measures do not succeed, Recipes 32 and 34 may be obtained for use during the fit. *Cigars de joy* or anti-asthmatic cigarettes (both of which are composed principally of stramonium leaves), or *ozone*, cigarettes, may also be procured and tried. But as with the smoking of stramonium above recommended, it is desirable that the cigars should be smoked *before* the paroxysm of asthma has been fully formed, or the effect is not so powerful. Ozone and nitre paper, and chlorate of potash and nitre paper, are also prepared by the chemists, the fumes from burning which may be inhaled. In order to relieve the distressing flatulence often preceding or accompanying a fit of asthma, ten grains of alum, five of ginger, and four of powdered rhubarb, may be taken with advantage. After the fit, in conjunction with a strict system of diet, as mentioned above, Recipes 14 and 6 should be used on alternate nights and mornings, for three or four days, or until the bowels are freely moved, to be followed by Recipe 70. Iodide and bromide of potassium (Recipes 45 and 46), and arsenic (Recipe 27), are also among the most approved remedies. Recently a new remedy called Jaborandi, a shrub growing in the Brazil, has been much extolled as a medicine for asthma. Wearing a Pulvermacher's galvanic chain is often beneficial.]

Asthma is sometimes more relieved by change of climate than by any medical treatment, although it cannot be said with certainty what kind of climate will suit each individual case. Sometimes a dry, at others a moist climate, affords most relief: sometimes town, sometimes country. A very slight change, as from one street to another, or from one house to another, has been known to check the attacks. As a general rule, elevated regions, as hill stations, do not suit asthmatics, on account of the greater rarefaction of the atmosphere.

With reference to asthma being sometimes caused by the aroma from hay, as mentioned above, it may be well to state that asthma has been known to be excited by the smell of ipecacuanha, also by the effluvium from horses, wild beasts, guinea-pigs, rabbits, cats, dogs, or even from the skins of animals. The fact that asthmatics of peculiar idiosyncrasy (*vide* p. 7) may be thus affected, should be borne in mind when searching for a cause of recurring attacks.

ATROPHY.—This term signifies wasting or withering away, and is the name generally applied to the wasting of children. Sometimes the face remains full while the body and limbs waste. Although at first there may be no strongly-marked fever, close observation will show heat of skin in the evening, perspiration in the night, and languor and debility in the morning; while the child looks pale and listless, is constantly picking the nose, lips, corners of the eyes, or anus, and the appetite is lost. The glands of the neck may also become swollen. If not relieved, the abdomen or belly grows large, the glands of the bowels become diseased, constipation alternates with diarrhœa, and fever of a hectic character (*vide* p. 223) and night perspirations become more apparent. The bowels now grow hot and tender to the touch, and the enlarged glands may be distinctly felt hard and knotty underneath the skin. There may be frequent vomiting, and the feet may swell. As the disease advances, the evacuations change, becoming slimy, bloody, and sour smelling, the breath is very offensive, and the urine is scanty, depositing a whitish sediment. The appetite is very capricious; the skin is extremely irritable, and the child, instead of being plump and rosy, presents the aspect of shrivelled old age. The more the child wastes, the more restless and irritable does it become, until it dies from diarrhœa and exhaustion.

This affection may occur at any age, from one year old to puberty, and it may be complicated by the addition of marked attacks of fever, as described under the head *Infantile Remittent Fever* (p. 216), by consumption, by enlargement and abscess of the glands of the neck, by skin diseases, by dysentery, by rickets, or by water on the brain; all of which are more liable to occur when the condition of atrophy is present.

The duration of the disease may be weeks or months, the progress being more rapid when complications as above mentioned present.

The causes of atrophy are chiefly impure air, and confinement in crowded buildings with improper food, aided frequently by the irritation caused by worms in the bowels, or from teething. There is also an atrophy of children, caused by a habit of eating dirt or lime plaster from the walls; a fact which should not be forgotten when treating such cases. Sometimes atrophy occurs, particularly in children with hereditary scrofulous taint, without the above exciting causes being prominently in operation.

Treatment.—The treatment of atrophy is rather dietetic and hygienic than medicinal. Pure air should be ensured, particularly in sleeping apartments. The nature of the food must be scrutinised, and care be taken that the patient, if an infant, is not suffering from the effects of a too exclusively farinaceous diet (*vide Remarks on the Feeding of Children*, p. 669). Much of the wasting or atrophy, and accompanying dysentery, from which children in India, and particularly the children of soldiers in barracks, suffer, arises wholly or partly from want of proper food, which the parents are either unable to obtain, or regarding which, from ignorance or carelessness, they do not take sufficient care. But while attending to diet, other matters must not be neglected. Worms, if present, must be expelled (*vide Worms*, p. 421). Diarrhœa must be treated by appropriate remedies (*vide Infantile Diarrhœa*, p. 143). If the teeth are troublesome, the gums must be lanced (*vide* p. 397). Tonics, especially quinine, in doses according to the child's age (*vide* p. 19), should be given. When the bowels are large, the abdomen should be gently rubbed daily, for some minutes, with equal parts of brandy and salad oil; or, if procurable, with soap and opium liniment. Lastly, change of air, milk and water baths, and sea-bathing, or at least bathing in sea-water, are important adjuvants in the treatment of lingering cases.

BED SORES.—When patients, whether from disease, as engthened fevers, or from injury, have to lie long in bed, and specially when they are obliged to lie long in one position, as is necessary for several varieties of fractured bones, sores are apt to form on those parts of the body subjected to the greatest amount of pressure. It is literally the death of the part from long-continued mechanical pressure. Thus the back, hips, buttocks, and elbows are liable to suffer, and in all cases when the patient is likely to lie long in bed, the commencement of bed sores should be guarded against from the first. The pressure producing the sore also diminishes the sensibility of the part affected, so that the patient himself may be unaware of the formation of a sore. It is, therefore, necessary that his word should not be accepted on the point, and that examination should be frequently instituted. Want of cleanliness and moisture, especially moisture from urine or fæces, irritates the skin, and renders bed sores much more likely, and, therefore, as preventive measures, great care must be given to these points. In all cases close attention should be paid to keep the bed smooth and the sheet free from 'rucks' or folds. Corded or feather-beds should not be used. The best is a horse-hair mattress, placed on a second or spring bed. The parts most subjected to pressure should be from the first bathed twice daily with a wash, composed of a drachm of alum dissolved in four ounces of water, which will tend to harden the skin. Plasters should never be used, as they are liable to wrinkle, and thus cause irritation, and they prevent the condition of the parts being seen. Small pads, or pillows, or air-pillows, should be made use of to relieve the parts most exposed to pressure. Frequently a pillow of circular shape, with a hole in the centre, will be found very useful. When a bed sore is about forming, the skin becomes reddened. If the pressure is not relieved, the part assumes a dusky appearance, afterwards becoming blistered. Then a grey or blackish slough forms, with discharge of thin matter. In such a condition, a poultice made of powdered charcoal should be applied, until the slough separates, after which, water dressing (Recipe 85), or, if procurable, one part of carbolic acid to fifty parts of salad oil, should be used. No application will, however, be of service unless pressure is removed from the part by the use of pads and pillows, as above mentioned. As the condition is attended by great debility, nourishing broths, stimulants, and tonics, as quinine (Recipe 17), will be required. In all cases of bed sores the apartment must be kept well ventilated, and disinfectants should be used as recommended at page 603; the smell from the affected part being always very offensive.

BLADDER, INFLAMMATION OF THE.—Inflammation of the bladder may be caused by injuries, by exposure to cold, by irritation from a stone, or it may be connected with stricture, or arise from the extension of a gonorrhœal attack. It may also be excited from an over-dose of copaiba, or of cantharides. It may also result from the unskilful use of instruments. Lastly, it may be a consequence of prolonged labour. When there is acute inflammation of the bladder, there is mental depression, fever, and pain with soreness on pressure over the bladder, or in the lower part of the belly. Pressure in the fork between the legs is also painful, where there is generally a sense of weight or burning. The urine is voided frequently and in small quantities, often with great straining, followed by aggravation of the pain and burning. The urine also contains a mucous deposit, and sometimes blood.

Treatment.—A hot bath will generally be advisable, and fomentations (*vide* p. 591) should be applied over the lower part of the bowels. Barley water (*vide* p. 696) should be prescribed *ad libitum* as a drink, and if there are thirst and feverishness, effervescing draughts of citrate of magnesia (*vide* p. 14) should be taken. The bowels should also be opened by sulphate of soda draughts (Recipe 2), and clysters of warm ater (Recipe 104) will probably be required to relieve pain. t night an opiate, as ten grains of Dover's powder, or fifteen rains of chloral, will be generally advisable; the Dover's owder being most useful when the skin is hot and dry. The atient should be kept in bed, and should be restricted to low iet, consisting principally of broths and light puddings.

BLADDER, CHRONIC INFLAMMATION OF THE.—nflammation of the bladder sometimes subsides into a inor degree, which may be long continued, becoming, as it then called, *chronic*. Or it may arise without the more arked symptoms referred to above. This condition mostly ccurs as a result of gonorrhœa, or gravel; or, in elderly ersons in connection with enlargement of a gland situated ound the neck of the bladder (*vide* p. 315). It may also e a sequence of stone, or of stricture, or of disease of he rectum, or kidneys, or it may follow accidents to the pine (*vide* p. 492). In chronic inflammation of the bladder he symptoms are those of the *acute* form, but in a minor egree; and there is, in addition, a discharge of thick ropy ucus with the urine, which smells ammoniacal, and often resents whitish-looking lines or streaks, which are caused by e *phosphate of lime* formed from the urine within the ladder. The urine is also sometimes bloody.

Treatment.—Medical aid should be obtained as soon as ossible, in order to ascertain if there is stricture (*vide* p. 65), or enlarged prostate (*vide* p. 315), or stone in the ladder (*vide* p. 66), or any affection of the kidneys (*vide* . 271), or of the rectum (*vide* p. 365). In the meantime, the symptoms are at all severe, the patient should keep imself in the recumbent posture as much as possible. Pain d irritation may be allayed by warm hip baths, or by emas of warm water (Recipe 104). The bowels should be aintained open by mild aperients (Recipe 2). The diet ould be nourishing but plain, with weak gin and water or und sherry in small quantities.

[For chronic inflammation of the bladder, not depending on organic changes, as stricture, stone, or enlarged prostate gland, as above mentioned, Recipes 48, 49, 69 may be obtained and tried in the order named.]

BLADDER, STONE IN THE.—Stone in the bladder is the consequence of a diseased condition of the urine. It is often one of the results of gravel (*vide Gravel*, p. 238). When stone is present there is acute pain aggravated by motion, and worse after making water. There is also frequent desire to make water, with itching and smarting at the end of the penis. This induces children to pull the foreskin continually, which becomes elongated, and often red and inflamed. There is also frequently sudden stoppage of the stream of urine, owing to the stone rolling in front of the passage, and the fluid passed is sometimes bloody. In children especially, there is much straining at stool, and usually protrusion of the lower bowel outside (*vide* p. 70). There are various kinds of stone, and the only remedy is surgical operation. Sometimes a small stone passing out of the bladder lodges in the urethra or urinary passage, requiring surgical operation also. The early symptoms of stone often resemble those of enlargement of the prostate (*vide* p. 315), or of stricture (*vide* p. 365), and instrumental examination is frequently necessary to decide the point.

BOWELS, INFLAMMATION OF THE.—Inflammation of the bowels is marked by fever and severe continuous burning pain in the belly, *increased by pressure*. The patient lies on his back in bed, with the *knees drawn up*, afraid to increase the pain by movement. There is generally costiveness, nausea or vomiting, great prostration of strength, and an anxious expression of countenance. The pulse is frequent and *wiry* to the touch, and the urine is highly coloured. In fatal cases pain increases, the bowels become swollen and *tympanitic* or drum-like, the extremities grow cold, the skin is bathed in cold perspiration, the features are sharpened, pain suddenly ceases, and the patient dies. Inflammation of the bowels must be carefully distinguished from *colic*, in which there is intermitting twisting pain, *relieved* by pressure, the patient often rolling about to obtain ease (*vide Colic*, p. 110).

The causes of inflammation of the bowels are various. It may arise purely from cold, as, for instance, from sleeping with the bowels exposed to a current of cold air. It may be caused by injuries or blows over the bowels, or by some substance lodged in, irritating and inflaming the bowels. In this manner it may be a sequel of colic. It also sometimes supervenes in the latter stages of dysentery, particularly to robust children affected with this complaint in an acute form. Lastly, it may occur in the course of certain fevers.

Treatment.—Mustard poultices should be applied daily, or as often as can be borne, over the whole of the bowels, to be followed by continued fomentations with hot water (Recipe 81). If pain and tenderness increase, and leeches are obtainable, from twenty to thirty, or one leech for each year of the patient's age up to thirty, should be applied to the most painful part, and if the patient is not weak, the bleeding from the leeches should be encouraged by fomentation. Fomentations at any period, while pain or tenderness remains, are highly desirable. A cradle (*vide* p. 491) to support the weight of the bed clothes from the tender bowels, is generally required. Clysters of warm water and soap (Recipe 104) should be injected every day; but purgatives should *not* be administered, unless costiveness prevailed previous to the attack, when a dose of castor oil will be proper at the onset. For the relief of pain and to procure sleep, a chloral draught (Recipe 75) may be taken at night. Fluid diet *only*, as weak tea, beef tea, chicken tea, and broths (*vide* p. 694), should be given. Iced water, or iced barley water, may be allowed.

[In a case of decided inflammation of the bowels or their coverings, as evidenced by the symptoms above detailed, calomel and opium pills (Recipe 43) should be procured as soon as possible, and should be given until the gums are slightly tender, or until a metallic taste is experienced in the mouth, when the medicine should be immediately stopped.]

A particular portion of the bowels, known as the CÆCUM, is sometimes affected, independently of the other part of the intestines. The *cœcum* is the commencement of the larger portion of the bowels, or the point of union between the large and small intestines. It is situated on the right side above the groin (*vide* plate, p. 30) and is the part of the intestinal tube in which *obstruction* often commences, when the symptoms are very acute (*vide* p. 69). But the *cœcum* is also liable to a chronic or slow form of inflammation, which may arise without any evident cause, or which may be the sequel of an attack of *obstruction*. The symptoms are at first apparently trifling, and the malady may therefore remain for some time unrecognised, and unattended to. There is a vague failing of the general health, comparative weakness, gradual loss of flesh, and occasional transient, colic-like pain, in the position indicated above. Or, these slight transient pains may occur first, without any decided deterioration of the general health. As the malady progresses there is loss of appetite, much flatulence, diarrhœa alternating with constipation, and more decided and permanent local pain. At length, the internal coat of the bowel ulcerates, and there is an increase of all symptoms, with mucus or slimy discharge streaked with blood as in dysentery, and sometimes large quantities of pure blood are passed.

A malady of the kind will always demand skilled advice, which should be sought on the first indication of the disease. Broadly speaking, the treatment consists in nourishing and easily digested food; in the frequent application of some counter-irritant, as iodine paint or mustard leaves; in the administration of tonics, of which the mineral acids with quinine will be best (Recipe 20); and in the prevention of constipation or of diarrhœa—whichever condition may prevail—by the appropriate remedies.

BOWELS, OBSTRUCTION OF THE.—This affection, in which the patient is unable to pass stool, often commences as an attack of colic (*vide Colic*, p. 110); but the constipation not being relieved by medicine, vomiting first of the contents of the stomach as partially digested food, then of sour bilious material, and lastly of fæcal material (as described in *Rupture*, p. 531) occurs, accompanied by much tenderness, pain, and distension of the bowels. Very often a hard lump may be felt somewhere in the bowels, most frequently on the right side, over that part of the intestines called the *cæcum*. The cæcum is the commencement of the large bowel, in which the small intestine ends (*vide* plate, p. 30). And the peculiar shape and formation of the part is more favourable than any other portion of the intestines, to the lodgment of such things as fruit stones, gall stones, portions of unripe apples, worms, or even pieces of hard fæcal matter, round or above which other fæcal matter stagnates. The neighbourhood of this lump, which should be searched for, is always most painful; the tenderness, and distension, radiating from this position to other parts, until perhaps the condition above described as inflammation (of portions, or of the whole) of the bowels may be set up; or, the acute symptoms being relieved, chronic inflammation of the cæcum (*vide* p. 68) may occur, as an insidious and distant result.

Treatment.—In the first place, remedies calculated to remove constipation should be given, and castor-oil or sulphate of soda (Recipe 2) may be used. The action of the purgative should be aided by an injection (Recipe 105), and the belly should be well fomented with hot water (Recipe 81). If these remedies do not succeed, twenty grains of chloral (Recipe 75) should be given three times a day, and a large quantity of warm water (about two quarts) should be injected several times daily. A drop of chloroform taken on a lump of sugar will often relieve the distressing vomiting present in these cases. If there is tenderness at any particular part of the bowels, leeches should be applied to the tender spot, to the number of thirty, or one for each year of the patient's age up to that number. The patient should be kept perfectly quiet, and *fluid diet only* should be allowed, in small quantities; for the more freely food and fluid are partaken of, the greater will be the distension, pain, and danger. The best diet will be extract of beef, or strong soup, thickened with flour or eggs. Thirst may be relieved by sucking ice, or frozen milk, or by washing the mouth with cold water. The continued giving of purgatives in this disease is useless, as most commonly, when the stoppage occurs in the small intestines, some part of the gut is twisted, or tied into a knot, or otherwise slipped inside itself, as the finger of a glove is when folded back on itself. In such cases the only chance of recovery is from opiates and perfect rest. During convalescence, and for long afterwards, much care in diet, and particularly measures to avoid constipation, are necessary; otherwise affection of the *cæcum*, as mentioned above, and described at page 68, may result.

[In cases of obstruction of the bowels, after purgatives and chloral have failed, one grain of hydrochlorate of morphia with five grains of extract of belladonna, should be given twice a day. The injections of warm water as above noted should also be continued twice or three times daily, and the patient should be kept perfectly quiet.]

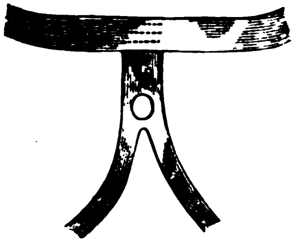
BOWELS, PROTRUSION OF THE.—This affection is met with in every degree, from the mere protrusion of a ring to the protrusion of half a foot or more. At first the tumour is bright red; but if it often comes down, it gradually becomes thickened and callous, and more like skin. Children who have been much relaxed, as from dysentery or diarrhœa, or from the too frequent use of purgatives, are very subject to the affection. Or it may be a consequence of the irritation excited by stone in the bladder (*vide* p. 66), or by thread-worms (*vide* p. 425). Or, the malady may arise from nurses allowing children to sit on their chairs for too long a period. Often, it occurs from pure debility; a cough even in feeble children being sufficient to bring the gut down. Sometimes the gut, when it at first presents as a red tumour, returns by its own elasticity. At other times, although thus returning, it comes down again immediately. In old cases, the tumour requires to be replaced.

Treatment.—To find out the cause of the affection is the first aim, as on removal of the cause the effect will generally cease. The presence or absence of worms, or of stone, must be assured. Constipation or diarrhœa, if present, must be first treated (*vide* pp. 116, 143). Then the child should not be allowed to sit on the chair for more than two or three minutes, and if the bowels are unrelieved, the patient should be placed on it again after some little interval.

The protrusion of the bowel may often be prevented by a very simple procedure. When the child is about to have a stool, let the nurse with her fingers draw the skin of the buttocks outwards, so as to render it quite tight over the fundament, and hold it in this position till the motion is finished. If the bowel comes down, the child should be laid on its face, the legs separated, and the protruded part gently pushed up with a soft damp oiled cloth. With children the utmost gentleness must be observed; for with pain from rough handling resistance is produced, and with it increased difficulty of replacement.

If the protrusion cannot be thus easily returned, it will be best to apply a bread poultice for a few hours, after which the gut will probably return, or it may be replaced by pressure with the damp oiled cloth. If the protrusion will not remain up, a band should be put round the waist, and another band dividing into two past the anus (*vide* sketch) should be brought from this band at the middle of the back, between the legs, and the ends should be separately fastened in front.

Where this latter band passes over the anal orifice, a large cork rounded at the end should be attached, the pressure of



which, if rightly adjusted, will prevent the falling down of the bowel. Children subject to this affection generally require tonics, and salt water bathing is often advantageous. Whatever improves the general health will also give increased strength to the parts which naturally support and retain the bowel in its position. In all cases when much of the bowel has descended the child should not be allowed to sit up for an hour or two afterwards, but should be kept in the horizontal posture, which will admit of the parts recovering strength and elasticity to retain their natural place.

BOILS.—Boils differ from abscess by containing a *core* (*vide Abscess*, p. 44). They are common in India, either occurring singly, or several at one time, or in successive crops, and they frequently follow as a sequel of fevers. They may be of various sizes, from that of a pea to the bulk of an egg, or larger. Large boils most frequently occur on the limbs, on the back of the neck, in the armpit, or about the buttocks, and are often sluggish, and long before coming to a head. In some instances after pain and swelling have occurred they gradually subside without the formation of matter, and are then popularly termed 'blind boils.' Small boils frequently present on the scalp, when hundreds may sometimes be counted. The cause of these Indian boils is in most instances blood deterioration, caused by length of residence, heat, scurvy, impure atmosphere, improper food, overwork, or probably attacks of debilitating fever. In persons predisposed by such influences, accidental local injury, or irritation, will often excite them. In children boils may attend the process of teething. Boils sometimes attack new comers, or persons who have suddenly changed their residence from one part of India to another. For instance, after a long period spent in the Upper Provinces, change to the moister climates of the sea-coasts is often followed by boils. Boils are sometimes erroneously attributed to eating mangoes; the fact being that the mango season, or shortly after the mango season, is the period of the year when, owing to the intensity of heat, and the blood deterioration resulting therefrom (*vide* p. 621), boils are most common. Occasionally boils present in persons who declare they never felt better in their lives. But notwithstanding this, the occurrence of boils must always be accepted as evidence of something wrong in the system. Very large boils are termed carbuncles (*vide* p. 96).

Treatment.—In all cases of boils the condition of the general health must be attentively considered, and the patient treated accordingly. If the tongue is furred and the digestive organs out of order, aperient doses as Recipes 1 and 2; or for weakly persons, citrate of magnesia (p. 14) will be required. If there is reason to suspect scorbutic taint, evidenced by tender, spongy, or bleeding gums; or even if these signs are not recognised, if the person has been in a locality where fresh vegetables were scarce, the medicines mentioned in the small type below should be obtained, and the diet detailed under the head *Scurvy* (p. 327) should be employed. If syphilitic taint (evidenced probably by eruptions on the skin) is present, the medicine mentioned below should be taken. If malarious taint exists, quinine (Recipe 17). If no particular taint is evident, Recipe 3, with or without the sulphate of soda, according as the bowels are constipated or the reverse, may be taken with advantage.

Local treatment consists in poultices, which may be of linseed meal, or of flour, or of figs—the latter remedy being as ancient as the Book of Kings. When matter forms, the most prominent part should be pricked with a clean lancet. In short, the whole treatment should be that recommended for abscess (*vide* p. 44). Or, if the boil is small, sluggish, and long in coming to a head, the old-fashioned remedy of yellow soap and sugar mixed in equal parts into a thick paste, and spread on wash leather, may be applied. The piece of leather should be sufficiently large to cover the whole of the boil, and should be kept in place by a bandage. Or a paste of honey and flour may be used instead. Spirits of camphor (*vide* p. 24), applied every three hours and allowed to dry on the part, if used sufficiently early, will sometimes disperse sluggish boils. Ulcers or sores, remaining after a boil ceases to discharge matter, should be treated by water dressing (Recipe 85), or by simple ointment (Recipe 86).

[If when boils prevail, there is reason to suspect a scorbutic taint of the blood, while the diet should be arranged as recommended under *Scurvy* (p. 329), Recipe 50 should be procured and used. If a syphilitic taint is suspected, Recipe 45 will be desirable. If no particular taint is evident and boils still present, Recipe 26 should be taken as a tonic. Equal parts of belladonna liniment and glycerine, smeared over the boil *before* the poultice is applied, tends to subdue the inflammation.]

Boils presenting somewhat varied characters, and occurring in different parts of the East, are often spoken of as if peculiar to that part of the country: as, for example, Aden boils, Scinde boils, Gwalior boils, Delhi boils. Similarly also we hear of Bagdad and other boils. But there is, it is believed, nothing radically different in these boils from any others. What is called the Delhi boil, for instance, is not confined to the comparatively narrow area of the city of that name. Neither is it a new disease. For it has been known for many generations under the native name of Arungzebe—after the Emperor of Delhi so called, who is said to have suffered from it. A similar boil is common at Muttra, at Agra, at Moultan, and throughout the semi-desert districts of Western India. The Delhi and similar sores commence as a small pimple, and may continue in that condition for some months; then gradually increasing in size, they break on the surface, becoming unhealthy-looking ulcers or sores, which n leave disfiguring scars. The parts most frequently cked are the elbows, fore-arms, back of the hands, ankles, , face, and thighs: rarely the trunk, and never the p.

Delhi and other similar sores have been thought due to presence of a parasite, but the evidence is not conclusive. y are, however, always connected with blood deterioration, are especially associated with that condition, perhaps at latent and undetected, arising from the combined effects corbutic taint, of malarious influences, of exposure to -continued heat, of residence in insanitary localities, aided etimes by a syphilitic taint. The treatment should be ded upon after due inquiry as to which of the influences tioned has been most powerfully in action. If a scorbutic t is suspected, fresh vegetables and Recipe 18 will be cated. If malarious influences are prominent, Recipe 17. eat appears the cause of debility, removal to a hill station, the journey home, is the desirable measure. While of rse all insanitary conditions must be remedied, particular ntion should be given to the water, which should be red and prepared for drinking, as recommended under the d *Water*, p. 635. The comparative immunity now ened by the residents of Delhi from so-called Delhi boils, is btless due to the hygienic improvements which have been lually introduced during the past few years (*vide* p. 615). Local applications should in the first instance consist of er dressing (Recipe 85), and when it is concluded from bbing pain, or increasing size if pain is absent, that ter is forming, poultices should be applied, of whichever ety—bran, linseed-meal, or bread—is most readily problé (Recipes 78, 79, 80). When, after the discharge natter, sores form, stimulating applications will generally equired, and a lotion, composed of twenty grains of sulte of iron (the *Hera-kusees* of the bazaars) dissolved in six ces of water, may be employed in the same manner as water is to be used in the water-dressing application (Recipe 85). When the sores become healthy and are inclined to heal, simple water dressing will be the most suitable application.

[If during the progress of so-called Delhi sore scorbutic taint is suspected, Recipe 50 should be procured. When, after the discharge of the matter, the remaining sore requires stimulating, the ointment (Recipe 95) should be obtained and used instead of the sulphate of iron lotion given above.]

BRAIN, CONGESTION OF THE.—Congestion of the brain may be the first step of inflammation as described below. It arises from similar causes and is marked in a minor degree by similar symptoms, viz. dull, oppressive pain of head, intolerance of light, restlessness, feverishness, and nausea. Purgatives and quiet are the remedies, by the judicious use of which many cases have been prevented passing into inflammation, or into apoplexy or paralysis, of which congestion of the brain may be the warning (*vide Apoplexy*, p. 52). No injury of the head, however trivial it may seem, should be neglected, especially if followed by the slightest appearance of the symptoms above named.

BRAIN, INFLAMMATION OF THE.—This serious disorder may be the result of injuries, may occur during the progress of fevers, may be caused by exposure to heat, may arise from excessive mental toil and anxiety, or it may arise from the extension of *erysipelas* (*vide* p. 178) from the outside to the inside of the head.

The symptoms are shivering, flushes of the face alternating with pallor, great pain in the head, and especially of the forehead, of a burning character, vomiting, high fever, intolerance of light, sleeplessness, delirium of a violent character. In the second stage of the malady there is an effusion of the products of the inflammation on the surface of the brain, or in its substance or cavities. The pulse then becomes slow, the pupils become dilated, there is deep insensibility and sometimes convulsions. Death, palsy, or perfect recovery may result.

Treatment.—The head should be shaved, and a bladder of pounded ice should be applied to the forehead and scalp. Or if ice is not obtainable, cold evaporating lotions (Recipe 83), or vinegar and water should be used. The bowels should be freely acted upon daily by sulphate of soda (Recipe 2). The patient should be kept in a darkened room, and perfect silence and quiet enjoined. No stimulants should be given, and the diet should consist entirely of beef tea, broth, and milk and water. No opiate or sleeping draught should be given without medical advice. It is a disorder urgently requiring the assistance of a skilful physician.

[If the above measures are not successful, and the bowels are not freely opened, a little croton oil should be obtained from the chemist, and two drops should be given rolled up with a little gum and water into a pill or pills. If the patient is delirious and will not swallow, the oil should be placed on the back of the tongue with a feather. If after the bowels have been freely moved, the symptoms still increase and medical advice cannot be procured, calomel should be obtained and given in three-grain doses every three hours, till slight tenderness of the gums comes on.]

BRAIN, WATER ON THE.—This malady, popularly but erroneously so called (known also as *hydrocephalus*, but more correctly as *tubercular meningitis*, and sometimes termed *brain fever*), generally occurs in young children of scrofulous constitution, and is rare after seven years of age. In children thus predisposed it often follows the convalescence from eruptive diseases, as small-pox or scarlet fever, or it may be excited by hooping-cough, or by forcing the mental faculties. It depends on the formation of small tubercles on the surface of the brain, and the subsequent production of a watery effusion into the cavities of the brain. It is often preceded for some time by loss of general health, the child taking food freely, but not thriving, and probably suffering from diarrhœa. There is loss of flesh in the body and limbs, but the face is not so much affected. The child is fretful and drowsy, there are sudden startings during sleep, and often grinding of the teeth. The tongue becomes furred, the breath offensive, there is also headache, and often a peculiar staggering gait. Except the last mentioned, the early symptoms are very much like those of atrophy (*vide* p. 61), and of worms (*vide* p. 421). After a variable period, during which these early symptoms may have been so strongly marked as to suggest danger, or so trivial as to have escaped notice, the child is seized with high fever and obstinate vomiting, which continues whether the stomach is full or empty. The peculiar gait becomes more staggering, and there is tendency to cling to surrounding objects. There is marked aversion to light, from which the child turns the head away; there is alternate flushing and paleness of the face, which is sometimes sad and frowning, at others vacant and stupid. The skin is harsh and dry, the temperature rising to 102° or 103° every evening. There is severe pain in the forehead, coming on in darting paroxysms, and causing the child to scream with a characteristic piercing cry, to which the term *cri hydrocéphalique* has been given. The pain also causes the child to put its hands to the head, which is also incessantly rolled from side to side. As the disease advances, the belly looks remarkably shrunken, but is not tender, the obstinate vomiting continues, the eyes squint, there is delirium and often repeated convulsions. When not convulsed the child is generally picking at the bed-clothes, or boring the fingers into the ears or nostrils. In some cases occurring in very young children, before the bones of the skull are consolidated, the head is visibly swollen. When the malady occurs in infants before the bones of the head have united, there is strong pulsation visible at the *fontanelles*, or where the bones of the head join. Often a fallacious remission of symptoms takes place; but at a later period, or from one week to three, after the commencement of the disease, the face assumes an aged expression, vomiting ceases, diarrhœa sets in, the pulse becomes slower, the breathing has a sighing or moaning character, the pupils of the eyes are dilated or they may oscillate, the child becomes drowsy, profound insensibility ensues, and the child dies. Or, death may take place during an attack of convulsions.

One of the most characteristic symptoms of *hydrocephalus* is obstinate vomiting; and whenever obstinate vomiting shows itself in a vaccinated child, hydrocephalus may be suspected ; if in an unvaccinated child, it may be premonitory of small-pox (*vide* p. 349). Hydrocephalus when long continued may be mistaken for *gastric* disorders, or for *typhoid* fever. The distinguishing features are given under the head *Disorder of the Stomach* (p. 364).

Treatment.—The sick room should be darkened, if possible, with green blinds. The air should be maintained as fresh and pure as can be, only the necessary attendants being admitted, and the utmost quiet being observed. When the child has to be moved, it should be raised in the most careful manner, without shaking. All sources of irritation must be sought for, and removed, as soon as possible. Thus, if the child is teething, and the gums are anywhere swollen and tender, they must be freely lanced (*vide* p. 397). If the child is being fed by hand, a wet nurse should, if possible, be obtained. If there is any suspicion that the mother's or nurse's milk does not agree with the child (when at the breast), the milk should be changed, and a fresh and healthy nurse whose milk is a little older than the patient should be obtained. If the bowels have not been previously loose, a purgative dose of castor oil should be given. If this does not act freely, the necessity of moving the bowels being urgent, sulphate of soda may be used every four hours (half a drachm at six months, one drachm at one year old) until the bowels are well purged.

If the child has been an ordinarily healthy child, and has not been debilitated by previous illness, one leech for each year of the child's age should be applied to the sides of the head behind the ears. But the bleeding from the leech bites should be stopped (*vide* p. 447) immediately the leeches come off. Cold applications, as powdered ice in a bladder or india-rubber bag, or, this not procurable, evaporating lotions (as Recipe 83), should be constantly applied to the head, and every day a mustard poultice protected by muslin (Recipe 109) (or, if available, mustard paper, similarly protected, may be used) to the nape of the neck. In the latter stages, or when drowsiness or convulsions come on, it may be also desirable to put mustard poultices on the soles of the feet and calves of the legs, alternately. The diet of the child, if weaned, should at first be restricted to milk and water and bread jelly (*vide* p. 695), but as the disease advances the strength of the patient should be gradually supported, and raw meat soup (Recipe 28), essence of beef and chicken broth, or panada (*vide* p. 694) may be used. Eventually a little wine and water may be also desirable. But, notwithstanding all endeavours, this malady frequently ends fatally.

When a child of a family has died of this disease, every hygienic condition should be brought to bear on the next. In most cases it will be better for the child to be nursed by a stranger. Food, climate, and exercise must be carefully considered, and all attempts to force the intellect must be interdicted.

[In this disease, if after the bowels have been freely moved during two days the symptoms do not subside, calomel should be procured and given as follows: For infants of from one to four or five months, a quarter of a grain; for older children of from six months to one year, half a grain; above one year, a grain every three hours, until it produces green, slimy or 'chopped-spinach'-like stools, or until it excites sharp pains in the bowels, which infants express by drawing up their legs and crying, but larger children describe by words.]

True water on the brain, as above described, presents, as its most prominent symptoms, vomiting, severe pain in the head causing the child to scream, flushed face, restlessness, shrunken belly, and fever, with pulsation and prominence of the *fontanelles*, or that part of the scalp in the infant covering the yet ununited margins of the bones of the head. It is necessary to distinguish this disease from one of an opposite character, called *spurious* or *false hydrocephalus*, and which has the following characters: a pale cheek, a cool skin, an expression of languor, an absence of any continued febrile symptoms, and in infants a sunken or depressed, instead of a swollen and prominent, *fontanelle*. On inquiry, a child in this condition will be generally found to have suffered from some loss of blood, from long-continued diarrhœa, or from some other exhausting discharge. The treatment of this so-called *spurious* water on the brain must not be that of the true disease. It should consist of nourishing diet, an allowance of wine, warmth, some preparation of iron, and careful nursing.

If there is any doubt as to the nature of the disease, the fact of other children of the family having suffered from the true affection, will indicate that the malady is probably the more dangerous description.

True water on the brain sometimes assumes a *chronic* form, coming on slowly and insidiously, so that it can scarcely be dated from any particular time. Children indeed are sometimes born with the disease. Or the chronic form may be a result or continuance of the acute form, as described above. In this variety the head often becomes an immense size, but the child may survive for months or even for years. Such cases are always accompanied by wasting, languor, drowsiness, irritability, frequent attacks of diarrhœa alternating with constipation, and often tendency to convulsions. Such cases rarely terminate favourably.

Parents often express anxiety about the large size of their children's heads, and sometimes fear the enlargement, real or supposed, may be due to water on the brain. It is therefore well to mention that the disease is not nearly so common as is popularly supposed, and that the large size of any child's head is not to be attributed to water therein, unless accompanied by other decided symptoms of the disease.

BREAST, INFLAMMATION OF THE.—This may occur from injury, from cold, from too sudden weaning of an infant, or from permitting the breasts to become over-distended with milk during nursing, or in consequence of the death of the infant. It thus frequently follows sore nipples (*vide* p. 84), the pain from the nipple often preventing the mother allowing the child to draw off the milk as often as necessary. Sitting up in bed to suckle, and allowing the distended breast to hang down without support; exposing the breast to cold while suckling; imperfectly developed nipples, causing the child to suck or drag too forcibly; the fruitless sucking of a child at a breast containing no milk, are all fertile causes of inflammation. Inflammation of the breast is most common after a first confinement, and is accompanied by sharp shooting pains, fever, and probably shivering, with hardness, heat, redness, and swelling in some part of the organ which is exquisitely tender to the touch. The secretion of milk is often stopped, but not always, if the inflammation is partial. This may go on to the formation of abscess in the breast, or it may often be cut short by appropriate treatment.

When inflammation of the breast, marked by the above symptoms, occurs, warm fomentations should be applied, and the breasts should be occasionally but not too frequently emptied by suckling, or drawing the nipple. This is best accomplished by the child, or, if the infant has died, by another child, or by the mouth of the nurse. Otherwise, it may be effected by an instrument made and sold for the purpose. Or by cutting off the bottom of a soda-water bottle, applying the mouth of the bottle to the nipple, and then sucking the cut end, when the milk will flow into the interior. The milk should, however, only be drawn when the breast becomes hard, swollen, and painfully distended.

Too much drawing promotes further secretion, and tends to aggravate the inflammation. At the same time, too much distension by milk must be guarded against. The feelings of the patient are perhaps the best guide, as regards the frequency with which the breast should be emptied. During the intervals between the change of fomentations, the part may be *gently* rubbed with salad oil, or, if procurable, with soap liniment. But it must be recollected that the rubbing must be *gentle*, as abscess is often induced by strong friction, as sometimes employed by nurses to 'rub the milk away;' or to 'break the string of the nipple;' phrases which are meaningless, and not applicable to facts. The breast should also be well supported by a handkerchief passed over the shoulder and under the breast in the manner of a sling, so that the breast may not hang down with the full force of its own weight. The patient should also lie as much as possible, by which the breast is prevented hanging down. Castor oil should be given to open the bowels, and cooling medicine, as citrate of magnesia (*vide* p. 14), may be taken to lessen feverishness.

[If obtainable, it will be desirable to procure and use *belladonna liniment*, in all cases of distension, or even of declared inflammation of the breast. The liniment should be *gently* rubbed on the breast, especially for two or three inches round the nipple. If the breast is merely distended, and the milk cannot be satisfactorily drawn off, the *belladonna* liniment will tend to diminish the formation of milk. If the stage of distension is passed, and the breast has become tense, shining, hard, and acutely painful, showing the existence of inflammation, the application of belladonna liniment every two or three hours, during from one to two days, will often remove the inflammation, and arrest impending abscess. It must be recollected that belladonna liniment would be poisonous to an infant, so that the breast may not be sucked while this remedy is in use.]

BREAST, ABSCESS OF THE.—If the inflammation as above described is not subdued, matter may form in the breast, constituting the affection known as *abscess of the breast*. After feelings of feverishness, shooting pains, and shivering, the breast enlarges at one particular part with *throbbing* pain, the skin becomes red, and afterwards whitish-coloured, and prominent. If not pricked with a lancet, the surface becomes very prominent and pointed, and ultimately bursts, permitting the *pus* or matter to flow out. As soon as this prominence or pointing is perceived, the matter should be let out by lancing, cutting from the centre, or from the nipple towards the circumference, and *not* across the breast, by which an unsightly scar would result. An early use of the lancet in abscess of the breast will probably prevent much suffering, which may arise from the burrowing of matter (unable to find an exit) in the substance of the breast. Afterwards a bread poultice, or a soft towel moist with warm water, should be applied until the discharge of matter ceases, when the wound should be plastered. If the abscess is small, the child may be put to the breast with advantage. If the abscess is large, the breast should not be sucked, but the milk should be drawn off occasionally. Sometimes, when abscess of the breast has been neglected, the whole organ is implicated, or even destroyed, by the burrowing of matter throughout its texture. Then canals or *sinuses* form, which, for their cure, require free incisions, often leading to a severe surgical operation, requiring professional skill and the use of chloroform.

Milk abscess is often associated with a poor condition of health. As soon, therefore, as matter has formed, the patient should have liberal diet, with a moderate allowance of wine or porter, and strengthening medicines, as Recipe 17 or 21.

BREAST, SORE NIPPLES OF THE.—Excoriations and cracks about the nipples, occurring during suckling, not only cause great pain, but are frequently the precursors of inflammation and abscess of the breast. All nipples are liable to crack, especially if not washed and dried after nursing; but the dark-coloured nipple is less liable to become sore than the pink one. The nipple should never be left in the child's mouth after the process of suckling is completed, as it soddens the part, and renders it more liable to crack. It should also be recollected that sore nipples may arise from *aphthæ* of the child's mouth (*vide* p. 391), which, if present, should be treated as well as the mother's nipple. *When nipples are simply tender but not cracked,* a little sweet oil is the best application, and care should be taken that the dress does not press upon and irritate the tender part. Some means by which the milk may be conveyed to the child, without the mouth of the latter coming in contact with the nipple, should also be adopted. The india-rubber teat, or cork nipple, may be used for this purpose. After suckling, the parts should be bathed with brandy and water in equal proportions, or alum water (Recipe 58) may be used, and a little salad oil should be afterwards applied. *When cracks exist,* it is a good plan for the mother to draw out the nipple by means of the old-fashioned feeding-bottle before giving it to the infant, the mother's nipple being put into the central opening and her mouth drawing the artificial one. Another method is the application to the nipple of the mouth of a wide-necked empty bottle that has been heated by hot water. The nipple, as the bottle cools, is pressed into the bottle and rendered prominent, without pain. *When there is a deep fissure or crack* in the nipple, it should be washed with alum water *after* every time the child suckles, taking care to wash the nipple *before* the child next sucks. If the abrasion is small, collodion may be used to seal up the crack. But the best means is the use of a well-made nipple shield, or other contrivance, through which the child sucks. Women subject to this affection should, during the latter months of pregnancy, and especially in first pregnancies, frequently wash the nipples with salt and water, or solution of alum, or they may apply every day a liniment composed of equal parts of rectified spirits of wine and olive oil. Such applications harden the nipples and prevent the liability to crack. It is also a good plan to expose the nipples to the air for two or three hours daily, which has a similar effect (*vide Diseases of Pregnancy*, Irritation of the Breasts, p. 311).

BREAST, IRRITABLE.—An irritable breast may be caused by similar influences, leading to inflammation; or from various maladies affecting the womb, when the breasts become sympathetically irritable and painful. Or, sometimes the pain is purely neuralgic, and is thus recognised by its *intermitting* character. There is generally a hard and tender lump in some part of the breast, and pain of a wearying, aching description. This condition is common in young girls about the period of the establishment of the monthly courses, and sometimes occurs in boys about the age of puberty. Warm fomentations will generally relieve the pain and swelling. But the general health must be attended to, and if the monthly courses are irregular, the treatment for *Amenorrhœa* or *Dysmenorrhœa* must be employed (*vide* those disorders, p. 409). If the pain is of a neuralgic, intermittent character, quinine, as Recipe 17, will be required.

BREAST, CANCER OF THE.—Cancer of the breast mostly occurs to females past middle life. If not removed early by the knife, it proves fatal. The more usual form of cancer commences as a small hard swelling under the skin, in which attacks of acute lancinating pain are experienced. It gradually spreads, involving the substance of the breast, and drawing down the skin of the nipple. So long as the mass can be moved, and the glands in the armpit are not swelled, there is hope of cure by excision with the knife. When it becomes an open sore, the chances are less favourable. Nothing but surgical operation will eradicate the disease. Women often imagine they have cancer of the breast, when the malady is not anything of the kind. Until middle life it is rare, and even then it does not occur so often as is popularly imagined.

BRIGHT'S DISEASE (*Degeneration of the Kidneys*, or *Albuminuria*).—Several forms of kidney disease are included under these names. They often originate as the after consequences, or sequelæ, of inflammation of the kidneys, or after scarlet fever; and they most frequently terminate in general dropsy. In this disease the urine contains a substance secreted from the blood called *albumen.* This may be discovered by the urine containing it turning white when boiled in a test-tube, or in an iron or silver spoon. This malady requires high medical skill both in diagnosis and treatment. It is only mentioned here in order to guard against the error of persons supposing comparatively trivial ailments to be the disease, which often comes on gradually and almost imperceptibly, and may only be discovered by the condition of the urine.

BRONCHITIS.—This is the term applied to inflammation of the lining membrane of the air-passages or tubes leading to the lungs. Bronchitis is generally caused by cold, and commences with symptoms of a common cold. There is first running at the nose, and a feeling of chilliness and aching pains in the limbs; the patient is thirsty and feverish, and there is languor, headache, furred tongue, loss of appetite, and restlessness. There is also a feeling of soreness behind the breast bone, and of constriction or tightness of the chest. At first there is a dry hacking cough, the breathing is oppressed and difficult, and very little phlegm is brought up; but in two or three days the cough becomes looser, and the expectoration more abundant. The expectoration during the earlier period of the malady is frothy when first coughed up, but becoming glairy, like white of egg, when allowed to remain in the receptacle. After some days the expectoration becomes thicker, and of a greenish-yellow colour, and the feeling of soreness and constriction of the chest then passes away. Throughout the attack, wheezing sounds may be heard with the breathing, or may be felt when the hand is placed on the chest or back. These sounds will partly disappear after phlegm has been coughed up, but recur again with re-accumulation of mucus in the air-passages. The sounds are due to the air passing through the viscid mucus which more or less fills the bronchial tubes. Any exertion or exposure to cold air, increases both the cough and difficulty of breathing. In favourable cases, the disease abates about the eighth day, the difficulty of breathing subsides, the expectoration is expelled with less difficulty, and the fever declines. In unfavourable cases the expression of countenance becomes anxious, the patient makes more painful efforts to breathe, the lips become purple, and the cheeks pale and livid; delirium may ensue, and the patient, unable to cough up the tenacious mucus, dies suffocated.

Bronchitis often attacks Natives who are suffering from fever during the cold season, especially in the northern districts of India, and on the sea-coasts, which are exposed to great variations of temperature, consequent on the land and sea-breezes, and the lulls between. This complication frequently renders the fevers of Natives very dangerous. But European adults are less liable to bronchitis in India.

Treatment.—An attack of bronchitis may often be cut short at the onset by a warm bath, eight or ten grains of Dover's powder taken at night, with half-drachm doses of sweet spirits of nitric ether in two ounces of water every three hours, and the encouragement of free perspiration in bed. A little prepared barley, boiled in half a pint of milk, to which is added half a wine-glassful of brandy or whisky, with nutmeg, lemon juice, and sugar, according to taste, will be found a very useful and agreeable potion, as it both allays thirst and induces perspiration. If the disease is not thus checked, the patient should be kept in bed, and be carefully guarded against cold, the temperature of the apartment being maintained day and night as *equable* as possible. A certain amount of moisture in the air is also advisable, and to effect this the steam from a kettle of boiling water may be allowed to escape into the room four or five times a day.

Mustard poultices should be applied to the chest, Dover's powder in ten-grain doses should be given at night, and Recipe 31 every four hours. The patient will not care for solid food at first, so bread and milk, rice pudding, arrowroot, beef-tea, and jellies may be given. In unfavourable cases, when the symptoms are as described last (*vide* p. 88), stimulants in the shape of wine or brandy will be required. Although the cough may be troublesome, and the patient may complain much of want of rest, no opiate other than the small proportion of such medicine contained in the above prescriptions should be given without medical advice; as composing or sleeping medicines may add to the congestion, and increase the danger.

In colder countries, and in old people, bronchitis often assumes a *chronic* form, when it is frequently termed 'winter cough.' People may have slight bronchial irritation during the cold season of Upper India, which passes off with the return of warmer weather. For this form of bronchitis Recipe 30 will be found beneficial; or if there is accompanying dyspepsia, Recipe 34 should be procured from the chemist.

BRONCHITIS OF CHILDREN.—The acute bronchitis of children is generally of much graver importance than when the disease attacks the adult. In cold countries, in the northern districts of India, and near the sea coasts, a considerable amount of the sickness and mortality of childhood arises from this malady. In children the mischief is more apt to spread down the bronchial tubes, even to the smallest branches, while in the adult the main branches are, as a rule, the seat of the disorder; and it is in proportion to this downward extension of the inflammation that the relative danger lies. For the more the smaller tubes are affected, the less can the blood become properly aërated, and death may take place from suffocation. The disease begins with symptoms of an ordinary cold, and for some days perhaps nothing more serious appears, or is apprehended. But by degrees there is more fever and restlessness, while the commencing implication of the bronchial tubes is denoted by short dry cough. Sometimes, again, bronchitis commences with threatenings of croup. The patient may wake in the night with harsh *brassy* cough (as described under *Croup*, *vide* p. 127), but instead of croup resulting, the malady passes into bronchitis. However the disease commences, with increase of fever the breathing becomes quick and wheezing, and the cough more noisy, frequent, and painful. The child feels as if the chest were stuffed, and wheezing sounds may be both heard and felt on one or both sides, when the ear or hand is placed on the chest. When the breathing is very difficult, and particularly during the paroxysms of coughing, the veins of the forehead and neck stand prominently out, and the face is flushed. The fever and cough are generally worse at night, and the child is therefore then more irritable and restless. But it will often sleep for several hours, until re-accumulation of phlegm or mucus in the chest wakens the patient, and causes a paroxysm of suffocative cough. The expectoration, if coughed up, is white and glairy. But very often the phlegm secreted by the inflamed bronchial tubes is only coughed into the mouth, when it is swallowed by the child, who cannot be made to understand the desirability of spitting the phlegm out. Often the fits of coughing cause vomiting, which sometimes much relieves the child, by clearing the throat and entrance to the wind pipe, and to some extent (from the pressure exerted by the act of vomiting) the bronchial tubes also of accumulated mucus, and thus allowing easier respiration. Although the skin is feverish and warm, it remains moist from perspiration. The mouth and tongue, although warm, are also moist. There is no appetite, but always considerable thirst. If the disease grows worse, the paroxysms of cough become more frequent, until the child has no strength left to cough. Then the face becomes pale, while the lips grow livid, the nostrils dilate with each inspiration, and the breathing is more hurried and difficult. Convulsions sometimes precede a fatal termination, but generally death takes place without much suffering, the child passing gradually into a sleepy and unconscious state. Favourable symptoms are, lowering of the pulse, diminution of the heat of the skin, less difficulty of breathing, cessation of wheezing, lengthened periods of sound sleep, and return of appetite.

The cause of bronchitis in children is most usually exposure to cold, and it is more common when north or north-east winds are prevalent. Bronchitis of a mild character sometimes occurs as a result of the nervous irritation caused by teething, and therefore the condition of the gums should be inquired into, and if necessary they should be lanced. Children who have recently suffered from hooping-cough, or measles, are also very liable to attacks of bronchitis. Also those who 'drivel' much, if great care is not taken to keep their chest dry.

For the distinction between bronchitis and inflammation of the lungs, *vide* the latter disease (p. 286).

Treatment.—The treatment of bronchitis in children should be commenced as soon as possible, as delay may be dangerous. When the approach of the malady is feared, the child should be kept in the house, and the temperature of the apartment should be maintained as *equable as possible* both by day and night. Recipe 31 should be given, in doses proportionate to the age of the child. A warm bath may also be used at the onset, to encourage the action of the skin. If the disease is not thus checked, the child should be put to bed, and a large hot linseed-meal poultice should be applied to the chest. This application may be renewed when it becomes cool, and the same process may be repeated for twenty-four or thirty-six hours. Occasionally a little mustard may be mixed with the linseed-meal; but irritating applications, as blisters or iodine, cannot safely be used for children. If mustard is used with the linseed meal, it should be in the proportion of one-tenth part of mustard only; the required effect not being blistering, but simply a degree of warmth. If linseed-meal poultices are used as applications to the chest, great care must be taken that they are not allowed to grow too cold before removal, also that moisture does not trickle from the poultice into the bed, and that the child is not chilled during the change of applications. A linseed-meal poultice should retain its warmth for three hours, and if made of the proper consistence no moisture will ooze from it. Unless the essentials as above named can be secured, it will be better *not* to use the linseed-meal poultice, but to cover the child's chest with several layers of cotton wool. The bowels, if confined, should be acted upon by senna or castor oil. If there is much wheezing or stuffing of the chest, an emetic of ipecacuanha wine should be given once, or (if it does good) twice, daily, which will often relieve much discomfort. The expectorant mixture (Recipe 31) should be continued during the whole illness. At the same time the strength of the patient must be carefully supported. Milk should be given freely, and beef tea or mutton broth *offered* alternately. If there is great weakness, a small quantity of brandy or port wine will be necessary. Solid food is not to be given; neither will the child care for it, so long as there is fever. Throughout the illness, the patient should lie with the head rather high, and be encouraged to cough frequently; not being allowed to sleep too long, lest dangerous accumulation should occur. When all severe symptoms have subsided, the patient may return gradually to its usual diet, and the administration of steel wine or some other tonic will be advisable.

The great importance of an *equable* temperature, whatever that temperature may be, cannot be too much insisted upon as part of the treatment of bronchitis in children. In a cold climate the proper temperature of the sick chamber would be 65° Fahr., but in India it must generally be much higher. But however high it may be, it should be maintained *equable*, and the patient should be guarded against draughts and cold. It is also advisable to moisten the atmosphere of the room by the steam from a kettle of boiling water. Also for some time afterwards care should be taken that the patient is not exposed to cold, as he will remain very susceptible to any influence affecting the chest.

BUBO.—The term bubo is applied to an enlarged and inflamed condition of the glands in the groin. This is often the result of some form of venereal disease (*vide* p. 401). But the glands of the groin may swell and inflame from other causes, especially from the irritation of a sore on the foot or leg, or from a strain of the parts, experienced, perhaps, when riding a restive horse. However bubo arises, the symptoms are, a greater or less degree of heat and swelling of the affected part, with severe throbbing pain, aggravated by pressure, or by attempts to walk. Often a bubo results in the formation of matter; but sometimes, after considerable pain and swelling, it gradually subsides. For the treatment, rest in the horizontal posture is essential, and cold evaporating lotions (*vide* p. 592) should be assiduously applied, which may, perhaps, prevent the formation of matter. If the swelling and tenderness, however, increase, and if the pain becomes of a *throbbing* character, warm applications should be gradually substituted (*vide* p. 592), and the case should be treated as an abscess (*vide* p. 44).

[For keeping dressings on the groin as well as for exerting pressure, the figure of ∞ bandage should be employed. The end of a bandage or roller (*vide* p. 431) should be laid on the front of the thigh of the affected side, and the roller should then be carried round the body, and fixed by a pin where it meets the end. Then it should be carried round the thigh, passing first outside, and then inwards, between the legs, across the groin, and so round the body again. If both groins are affected, a double figure of ∞ bandage may be used.]

BUNION.—This term is applied to a swelling, generally appearing over the joint of the great toe. It principally arises from irritation of the part from the pressure of a tight, ill-fitting shoe, and is in the first instance an effort of nature to afford protection to the part pressed upon. It consists in the formation of a little bag or sac, containing watery fluid, which acts as a pad against pressure. But the pressure soon inflames this bag itself, so that bunions, even when recently formed, are often tender and inflamed, requiring rest, fomentations, and sometimes leeches. When old, the swelling becomes hard, with occasional periods of tenderness. Removal of all pressure is the only certain means of relief. This should be effected by cutting the boot leather away, when plaster spread on soft leather may be applied over the part as a protection. If a bunion suppurates, or 'gathers,' which it sometimes does from irritation and neglect, it must be poulticed and treated as an ordinary abscess (*vide* p. 44).

BURNING OF THE FEET.—This is not a very common, although often a very troublesome affection. It may simply be an uneasy sensation of warmth in the soles of the feet; or, in any degree, to the most painful sensation of burning, preventing sleep, and thus destroying the general health. As the disease advances, there may be distinct periods of increase and diminution of the burning pain. In some instances the part affected is moist, in others quite dry. Emaciation and debility accompany the progress of the malady. This affection is most frequently met with in Arracan, Burmah, and the Eastern settlements, and more often attacks Natives than Europeans. It sometimes occurs unconnected with any other malady; at other times it appears as a sequela of fever, bowel complaints, rheumatism, or beri-beri. Its cause is unknown, some considering it due to malarious influences, others regarding it as a species of rheumatism.

Treatment.—The Natives use as a local application salt, oil of sesamum, and lime juice in equal proportions. Bathing the feet in strong brine is also efficacious. Chloral may be given at night to relieve pain, and procure sleep. Tonics, as quinine, iron, or arsenic, should also be taken. Change of climate is, however, the only certain remedy either for Europeans or Natives.

CANCER.—Cancer may occur in any part of the body, but is more common in the breasts of women, in the womb, in the testicle, in the stomach and liver, and in the skin. Cancer depends on a vitiated condition of the blood, and is often hereditary in families.

Cancer of the Breast.—*Vide* p. 86.

Cancer of the Womb.—This variety of cancer causes much pain, and is accompanied by a badly smelling discharge, with great weakness and emaciation. It generally occurs after middle life.

Cancer of the Stomach.—When cancer affects the stomach it causes great pain, vomiting of bloody mucus, emaciation of the body, and a hard tumour, which may be usually felt on examination of the left side below the ribs.

Cancer of the Skin.—This is distinguished from other morbid swellings, ulcers, or tumours, by its persistent growth, which cannot be restrained; by its spreading to neighbouring parts; by the adjacent glands becoming affected, swollen, tender, and painful; and by the tendency to form an open and increasing sore.

Treatment.—There is no cure for cancer except removal by the knife, and such surgical means can only be had recourse to when the disease affects external parts. Cancer is only mentioned in this Manual, because the brief descriptions may tend to prevent an erroneous impression of cancer being present when the real affection is something far less important.

CANCRUM ORIS.—This is the name given to a very destructive ulcer which attacks the cheeks, lips, and gums. It usually occurs to children, and is attributable to debility after small-pox, scarlet-fever, or other exhausting febrile diseases, especially when combined with improper and deficient food, neglect, and living under unsanitary conditions. Or it may arise under such circumstances of life without any prior fever. The disease commences as a dark, hard swelling of the cheek, or lips, which very soon mortify and slough away. In this manner large portions of the cheek, lips, gums, or even jaw-bone, may be destroyed. There is profuse discharge of both saliva and of badly-smelling fluid. The malady may terminate fatally from exhaustion, or from bleeding from some artery opened during the sloughing process; or, the patient may gradually recover, with the loss of some portion of the cheek, lips, or jaw-bone.

The treatment consists in keeping the affected parts very clean by frequent washing with carbolic acid solution (Recipe 117); in giving tonic medicines (Recipe 17); and in liberal diet, as eggs, beef-tea, wine, milk, or chicken-broth. If possible, the advice of a medical man should be procured, who would probably endeavour to stay the progress of the disease by the application of strong nitric acid, under chloroform.

An allied malady, called *noma*, sometimes attacks the private parts of female children, who have been subjected to the predisposing causes described above. The disease when in this part presents very similar progress, and requires a similar treatment.

CARBUNCLE.—A carbuncle is an exaggerated boil (*vide Boils*, p. 72), most frequently situated where the tissues underlying the skin are of a dense fibrous character, as the nape of the neck, the back, or buttocks. Carbuncles are usually seen in debilitated people over forty-five years of age. They result from an impure, vitiated and debilitated condition of the blood, but their appearance at any particular part of the body may be determined by an accidental blow, injury, or sprain. Carbuncles vary in size, sometimes being as large as an orange. They are very hard, dreadfully painful, and cause the skin above to become of a dusky red colour, which gradually fades off into the surrounding skin without any defined border. As the carbuncle forms, matter is discharged from several small openings. The progress of the disease is slow, but after a time, generally two or three weeks, the whole of the affected skin and tissues underneath slough away, leaving a deep, irregular cavity, which also extends underneath the neighbouring skin. Carbuncles are commonly attended with much constitutional disturbance, such as fever, perspirations, and debility. The treatment must be both constitutional and local. The strength must be kept up by nourishing diet, port wine, quinine, and iron. The local treatment consists of hot fomentations, poultices, and at the proper period free incision, in order to let the *core* or decayed tissue and matter escape. When the discharge ceases, the part may be dressed with simple dressing or plaster, as an ordinary sore.

CATARRH.—Catarrh presents itself under two forms, viz. a *common cold*, and *influenza* (*vide* p. 265). The symptoms of a common cold are lassitude, chilliness, or shivering, a feeling like cold water running down the back, pains in the back and limbs, often sore throat, and a sense of heaviness in the head and eyes, the latter being weak and watery. There is also headache, especially of the forehead, stoppage of the nose, alternating with discharge, while the respiration is impeded from inability to breathe through the nose, and the person is feverish. The taste is also perverted, the stomach disordered, and there may be a feeling of oppression at the chest, and often some degree of hoarseness, cough, and bronchitis. Frequently an eruption of herpes (*vide* p. 342) appears on the lips. At the end of three days the malady begins to subside, or, the symptoms becoming aggravated and the patient more feverish, the cold may pass into some more dangerous affection, as acute bronchitis, inflammation of the lungs, or croup. The satisfaction often expressed by mothers at the running noses of their children is well founded, as it comparatively rarely happens that a catarrh after profuse running at the nose passes into more dangerous ailments. This fact, long observed, appears to have given rise to the custom of saluting after sneezing.

Treatment.—In order to escape colds, persons should as much as possible avoid sudden transitions of temperature. When over-heated they should not endeavour to cool themselves too quickly by throwing off clothing, or suddenly sitting still in comparatively cold situations, but cease exercise gradually, and avoid currents of cold air, although grateful to the feelings. Colds may sometimes be taken by passing from a cold atmosphere into a heated one, but such transition is not so apt to occur in India as in colder climates. The remedy for an ordinary cold may be the milk, barley, and spirit mixture, mentioned at p. 88, for slight bronchitis, or, if this cannot be obtained, a stiff glass of spirits and water, taken at night, with the object of inducing sleep and perspiration. For more severe colds a hot bath, or the feet in hot mustard and water, ten grains of Dover's powder (compound ipecacuanha powder) at night, and half a drachm of the sweet spirits of nitre in an ounce of water three or four times a day. If the cold be attended with troublesome cough or bronchial irritation, Recipe 31 should be taken. Spirits of camphor (*vide* p. 25) taken every two hours at the very commencement of a catarrh will sometimes arrest it, and is most useful when there is persistent shivering.

[A mixture, composed of tincture of aconite one drachm, water eight ounces, taken in teaspoonful doses every hour, or two hours, according to the severity of the symptoms, is very beneficial, if taken at the commencement of a cold. If there is not much fever, the dose may be taken at the longer interval, and the patient should go to bed and drink freely of water. The treatment may be continued for six or eight hours, when the skin becoming moist the symptoms disappear. If the patient cannot lie up, the following prescription, used frequently and plentifully *as a snuff*, will afford much relief. Hydrochlorate of morphia two grains: acacia powder two drachms; subnitrate of bismuth six drachms: to be well mixed. To be labelled, 'poison, not for internal use.']

Colds, although generally regarded as trivial ailments, should not be neglected, as other intractable diseases have their origin in, or at least may be excited by, a succession of colds. Delicate persons who are subject to colds should endeavour to strengthen their system by regimen and judicious exposure to the external air. Strong persons subject to colds may prevent such attacks by care, exercise, the free use of the bath, and the flesh-brush.

It sometimes occurs that, at certain seasons, persons are affected with fits of *spasmodic sneezing.* This may depend on some vegetable atoms, as from hay, floating in the atmosphere, when change of locality will effect a cure ; or, if this cannot be accomplished, the person may use snuff occasionally, and take Recipe 29 ; or two drachms of a solution of quinine (two grains in one ounce of water) may be injected twice daily into the nostrils. A mixture of quinine one grain, camphor two grains, with starch three grains, used as snuff, is sometimes very beneficial. An ointment, composed of one grain of morphia, ten grains of quinine, and three drachms of spermaceti ointment, smeared on the outside of the nostrils, may also be used.

CHAPS.—Chaps and roughness of the skin of the hands chiefly occur from the cold of Northern India, which is sometimes intense, particularly during the nights of the winter season. When the skin cracks over the knuckles or elsewhere, the part is popularly said to be 'chapped.' Protection from the cold winds should be secured by gloves, and cold cream or glycerine may be applied.

CHILBLAINS.—Chilblains are seldom seen in India except in the cold weather of the northern districts, when they not unfrequently occur to children. Chilblain is the term commonly applied to slight inflammation of the skin over the toes, or on some portion of the feet, but they may occur on the hands or ears: they are caused by sudden alternations of temperature, such as warming the feet and hands when cold and damp by the fire. The skin becomes red in patches, slightly swelled, and there is much irritation and itching, especially in the evening. Sometimes, owing generally to scratching, the parts blister or even become a sore. Chilblains are most common in delicate women and weakly children, or in persons whose circulation is very languid.

Treatment.—On the approach of the cold weather, those liable to chilblains should endeavour to harden the skin of the feet, which should be rubbed with alum solution (Recipe 58) or with strong brine. The socks should be thick, and the boots roomy, well-fitting, and furnished with strong soles. Sudden exposure to cold or wet should be avoided, and the temptation of bringing a benumbed hand or foot close to the fire should be overcome. When there is a red blush on the skin, and the part is painful, it may be gently rubbed night and morning with brandy and salad oil mixed in equal proportions, or with soap liniment if available. If there are vesications or blisters, care must be taken not to break them, and the liniment must be applied lightly with a feather; if ulcers or sores form, poultices will probably be required, to be followed by simple dressing (Recipe 86). When persons suffer badly from chilblains, tonics and generous diet will generally be indicated; also a moderate degree of exercise sufficient to circulate the blood.

[For chilblains in the unbroken state, either spirits of wine or spirits of camphor (*vide* p. 25) may be used with great advantage, instead of the brine or alum solution mentioned above.]

CHICKEN POX.—Chicken pox is a contagious eruptive fever of a mild nature, generally occurring in children. It is by some considered to be *modified small pox* (*vide* p. 351). During twenty-four hours there is slight fever, and often catarrh, then an eruption of red pimples appears first on the back, then on the face and other parts of the body, accompanied by slight itching. There may only be one crop, or there may be a succession of crops of such pimples daily, accompanied by an increase of fever, which declines after the spots have appeared. On the third day the pimples become vesicular, that is, they contain a little watery fluid; these vesicles break on the fourth day, disappearing about the sixth day, when the thin scab falls off, without leaving any mark or scar. The vesicles are not 'pitted' or depressed as in small-pox, neither does matter form in them as in the latter malady, and the initiatory and accompanying fever is always much slighter. A gentle aperient, as citrate of magnesia, and care in avoiding catching cold, form all the treatment desirable in most cases.

CHOLERA.—Cholera commences in two ways: 1st. *Suddenly.* 2ndly. *After 'malaise' and painless diarrhœa,* which may extend from one to ten days, or longer. The seizure often occurs during the night, or in the early morning, and there is frequently from the very first great depression and debility. Spasmodic griping in the bowels is generally felt, followed by frequent watery purging, and vomiting, first of the contents of the stomach, then of watery material. These evacuations, which are at first coloured, quickly change to an almost odourless *white-coloured* fluid discharge, resembling water in which rice has been boiled. At the same time severe cramps, commencing in the fingers and toes, rapidly extend to the calves, thighs, and muscles over the bowels. There is great thirst, no saliva being secreted, and urgent supplication for water. There is a feeling of burning heat in the stomach, the pulse is feeble, the urine is scanty, and ultimately none is passed. The patient is very restless, and constantly tossing about the bed, and noises in the ears may be complained of. As the disease advances the eyes become sunken and surrounded by a dark circle, the features are pinched or sharpened, the extremities cold, and the pulse becomes imperceptible; the person falling into a state of collapse or prostration, and unable to speak above a whisper. Blueness of the surface, cold perspiration, the skin of the fingers wrinkled like that of a washerwoman, thready or imperceptible pulse, suppressed urine, difficult breathing, husky voice, sickly odour, cold breath, cessation of vomiting, stools passed unconsciously or heedlessly, and tossing about the bed, are symptoms denoting a fatal issue.

Favourable symptoms are, the cessation of the burning in the stomach, and of vomiting and purging, return of colour to the evacuations, the passage of urine, the voice becoming less husky and stronger, and the pulse recovering force and power.

During an attack of cholera the temperature rarely rises above 99° in the armpit; but notwithstanding this, the patient prefers to lie uncovered, and complains of oppression. The duration of the disease may be from several hours to several days.

It should be noted, that in some epidemics of cholera the usual cramps have been absent, or much less felt than in the ordinary type of the disease. Also that more persons stricken with cholera die at the commencement or the middle period of an epidemic, than towards the termination of the epidemic.

Causes.—The precise cause of cholera is not known, but it is generally admitted to be an invisible poison, which may be transmitted from adjacent places through the air; which may be conveyed from place to place by human beings, or by other agencies; and which may contaminate drinking water or food, and may thus be taken into the system. There is, however, evidence tending to prove that the cholera evacuations constitute the principal, if not the only channel of contagion; and that the great cause of the production of cholera is the contamination of water used for drinking purposes with the dejections of persons suffering from the complaint. Doubtless, the contagious principle becomes rapidly multiplied in water, especially if exposed to the heat of the sun. Milk, adulterated with contaminated water, frequently, it is believed, becomes a medium of the dissemination of cholera. Or, the poison may dry, remaining vital in the same way as germs of various fungi are known to remain vital, until brought into activity by favourable circumstances of air, heat, and moisture, as may occur when the dried germs are swallowed or inhaled. The cholera poison is supposed to have originated in Eastern tropical countries, where, especially in the Delta of Bengal, it is periodically reproduced, spreading thence to an indefinite extent. Be this, however, as it may, and in whatever manner the poison is produced, experience has demonstrated that whatever tends to lower the vital powers will predispose to the disease. Such agencies, for instance, as the depression of the nervous system, following intoxication; long and fatiguing marches, and the exhaustion consequent thereon; sleeping in overcrowded barracks or other crowded apartments, damp, filth, destitution, drought, and famine. In every epidemic it is always found, that the disease is more fatal in those localities most notorious for their insanitary conditions—particularly as regards defective conservancy—and amongst those classes who are rendered feeble and debilitated from want or destitution. Instances are known of cholera being localised on one side of a street, by aggravated unsanitary conditions.

Treatment.—Nearly all medicines have been given for cholera, but no certain cure has been discovered. Yet many lives are saved by careful nursing, and by assisting nature's efforts towards reaction by the judicious administration of remedies, and by plenty of fresh air. It is in the premonitory stage, or that of diarrhœa, that most good may be done. When cholera threatens or is prevailing, the slightest approach to diarrhœa should be at once attended to, otherwise it will probably run on into cholera; and all saline purgatives should at such a time be avoided.

Immediately on the first symptoms of diarrhœa the patient should take thirty drops of chlorodyne, with half a wine-glass of brandy in a similar quantity of water, repeat the dose every two hours if necessary. Or he may take cipe No. 66, which is a very good remedy at such tin especially if tendency to sickness is already felt. If neit of these remedies is immediately at hand, the person sh take twenty drops of spirits of camphor (*vide* p. 25) ev half-hour. If purging continues, after two or three dose the two first-mentioned remedies, or after five or six of camphor, give ten grains of Dover's powder every three ho if there is much nausea or vomiting, a mustard poul should be applied over the pit of the stomach; and to in the flow of urine, one drachm of sweet spirits of nitre, in ounces of water, should be given every three hours, but at the same time with the Dover's powder. The pat should be kept in the recumbent posture as quiet as poss the bed should be protected by a waterproof sheet, and u purging has stopped the diet should consist of toast and arrowroot or sago, mutton or chicken broth, with a l good port wine; all solid food should be avoided. thirst may be quenched by plain cold or iced water, or water, and ice, if available, may be kept constantly in mouth.

This treatment, if commenced early, will often prove cessful; but if purging and vomiting continue, the pat becomes as described in the latter stage of the disease, fal into a state of *collapse*. The period for any medicine chlorodyne) containing opiates has now passed, but e effort must be still made to support the system and to m tain animal heat. In collapse it is useless giving medici as the stomach cannot absorb them. They may accumul and become the cause of much mischief by aggravating actionary fever. *The great desideratum in collapse,* i *keep up animal heat in every way which will not fat* *the patient.* Above all, he must be kept quiet, and *allowed to assume the erect posture.* Thirst may be che table-spoonful of brandy or a little champagne *in a bler of water.* No other stimulant should be given, but h or Liebig's meat soup (Recipe 28) may be *offered* frently, but should not be pressed on the patient. If the thing is difficult, a mustard poultice may be applied to chest.

Cramps and cold are best relieved by friction with the l, by the application of hot bran bags, or of cloths satud with warm turpentine, or by mustard poultices.

The sudden cessation of vomiting when collapse is present, t always be regarded as an unfavourable sign. The pulse not be perceptible at the wrist, the surface may be cold, the voice reduced to a whisper; but while the patient strength to vomit, the case is not hopeless. In such ines there is generally much thirst, and pure cold water be given *ad libitum.* Filling the stomach with water, nly tends to induce the action of vomiting, but also ers the process more easy.

Similarly, so long as urine is passed, the case should not garded as hopeless, and with the view of encouraging secretion some practitioners apply mustard poultices and irritants over the loins, giving strong medicines, as r, to act on the kidneys. These measures should be ys adopted when cessation of the passage of urine is an and marked symptom.

nstead of the sweet spirits of nitre mentioned above, it will be better sible to procure and give Recipe 74, which is a much stronger diu- This will be the more important, if the case is one in which the ge of the secretion and passage of urine occurs early.]

ll authorities agree that a cholera patient should be ed as much as possible, and that no one, except the dants actually necessary, should be allowed in the apart- . At the same time the access of pure air to the nt should be secured by the free ventilation of the . The rules given at page 607 regarding the disinfection and disposal of all discharges, the disinfection of the hands of attendants, and of utensils used, *should be rigidly carried out* during the illness; and afterwards, those relating to the disinfection of the bedding, clothing, and rooms.

Great care should be exercised with regard to diet during convalescence. Broths and jellies, farinaceous puddings, sago and arrowroot may be given; but *no solids* whatever, until the stools are of a natural colour, the urine is secreted freely, and all other symptoms have vanished.

SECONDARY FEVER OF CHOLERA.—When reaction or recovery from the collapsed state has fairly commenced, known by the return of the voice, the passage of urine, the return of colour to the stools, the stronger pulse, and calm sleep, little treatment beyond nourishing diet is required in ordinary cases. It sometimes happens, however, and more especially with Europeans, or when much stimulants have been given, that *reactionary fever* succeeds recovery from cholera. This may be mild, terminating in a few hours with an eruption resembling roseola (*vide* p. 334) or nettle-rash (*vide* p. 334). Or, the *reactionary fever* may be more severe. For the first few hours after the feverishness commences the tongue is white, but it quickly becomes brown and dry, while black particles form on the teeth; the eyes become red, the cheeks flushed, the pulse rapid, and the surface of the body hot. The patient now often grows delirious, with symptoms of congestion of the brain, and ultimately becomes insensible as if suffering from the last stage of typhoid fever. This struggle usually lasts from four to eight days, when the symptoms gradually yield or death ensues.

Treatment.—In the stage of reaction the heat of the skin may be moderated by cold sponging, and the secretion of urine, if not plentiful, may be promoted by a mustard poultice over the loins, or by dry cupping (*vide* p. 600), and by diuretics, as the sweet spirits of nitre (or, if obtainable, by Recipe 74). If there is vomiting, as most frequently happens to patients of intemperate habits, small doses of citrate of magnesia should be given ; if this does not relieve the vomiting, two or three drops of chloroform in a wine-glass of water may be tried; if sickness prevents food being retained, digested enemas, (*vide* p. 597) or, injections of Liebig's raw meat soup (Recipe 28) should be given every four hours. When the tongue becomes brown and dry, the pulse weaker, although not slower, and if delirium occurs, a table-spoonful of port wine should be given every hour. Iced water may be given *ad libitum* according to the patient's desire. Supporting the strength by strong broths and soups given frequently, but in very small quantities, as a teaspoonful, or, if so much can be borne, a table-spoonful at a time, is perhaps more important in this peculiar condition occurring after cholera, than purely medical treatment.

Cholera in Infants or Children presents the same symptoms as when occurring to older persons. There are the vomiting and purging of material resembling rice water, coldness of legs and feet, feeble pulse, paleness or leaden-blue colour of the face, sunken appearance of the eyes, great weakness, absence of urine, restlessness, and thirst.

Treatment.—In the first instance chlorodyne may be given in doses corresponding with the age of the child (*vide* p. 10). Equal parts of milk and lime water (Recipe 41) may be given as a drink, and which will also tend to moderate the irritability of the stomach and to stop the purging. When the pulse is feeble and exhaustion great, Recipe 66 may be given, in doses according to age; and a little port wine may be used. In some cases very strong infusion of green tea, given in teaspoonful doses with six or eight drops of aromatic spirits of ammonia, has proved of great benefit. The tea often acts energetically on the state of drowsiness, and causes the little patients to revive rapidly, while the ammonia not only stimulates, but also acts as an antacid. In all cases, at an early stage, a mustard poultice guarded by muslin

(Recipe 109) should be applied over the bowels, while the extremities should be frequently rubbed with brandy and salad oil in equal proportions, or with soap liniment if obtainable.

CHOLERA, PREVENTION OF.—Many preventive measures may be comprised in one word, CLEANLINESS; and especially as regards the matter of *conservancy.* During and after cholera the rules for disinfection (*vide* p. 605), especially of the discharges, and of rooms, should be vigorously pursued. On the *approach* of cholera, increased sanitary vigilance in the vicinity should be enforced; but *after* the disease has appeared, probably more harm than good will be done by opening up foul drains, or cesspools (*vide* p. 608); but sulphur may be burnt in infected localities. Fires about thirty yards apart, should be kept burning for forty-eight hours, sulphur being constantly thrown on the fire. All the fires should be lighted at once, and about four pounds of sulphur will be required for each fire during the period.

When travelling, the neighbourhood of villages or other localities in which the disease prevails should be avoided as encamping grounds, or if necessity compels a stay near such places, tents should be so pitched as to let the wind blow from the tents to the village, instead of the reverse. As little communication as possible should be allowed between the camp and the village people. If possible, persons should leave infected localities marching against the wind.

Lastly, what may be regarded as *personal hygiene*, in contradistinction to *general sanitation*, must be attended to. Fear of the disease, as predisposing greatly to attacks of cholera, must be guarded against. The incautious use of unripe fruit, exposure to the midday sun, or to cold night dews, great fatigue, the use of badly-cooked vegetables, and intemperance, all exercise a debilitating effect on the system, or excite irritation in the intestines, and thus render any person a more easy prey to the malady.

When cholera prevails in a native village, and it may be desirable to send medicines for distribution, or for entrusting to native servants or others, for general use during seasons of cholera epidemic, nothing is a better compound than assafœtida and opium pills. These are composed of one and a half grain of assafœtida, one grain of red pepper, and half a grain of powdered opium or extract of opium, and directions should be given for one pill to be taken by the patient after every loose stool. In the absence of medical aid, or in the absence of anyone able to consult a book, these pills will often prove useful in checking the malady, if taken at the commencement of the illness.

CLUB FOOT.—This affection presents several varieties. The most common are, when the heel is drawn *upwards*, or the foot is turned *inwards*; or, as often happens, when *both* such conditions prevail. When the heel is drawn upwards, the person walks on the sole of the *foot*, and on the toes; or, in bad cases, on the toes only. When the foot is turned inwards, he walks on the outside. Sometimes the foot is turned outwards, and the person walks on the inner edge. Sometimes the toes and front part of the sole are drawn upwards, and he walks on the heel. Club foot is commonly a congenital malady, the child being so born. The deformity arises from *contraction* of some muscle or muscles acting on the foot, or from *paralysis* of some muscle or muscles, in consequence of which the opposing muscle or muscles act uncontrolled. Such cases usually require a surgical operation, consisting in the division of the tendon of the muscle or muscles by which the foot is drawn into the unnatural position. But club foot may come on after birth, when a child has weak ankles. In the natural healthy condition, the weight of the body rests principally on the heel and ball of the foot, the two forming the extremities of what is called the 'plantar arch.' By this means a degree of elasticity is given to the foot, and consequently to the step or gait, which would be altogether wanting if the 'plantar arch' were not there, or if the parts entering into its structure were joined in one mass of bone, instead of consisting of small bones jointed together accurately, with ligamentous substance. When, however, children are allowed to walk too soon, particularly if fat and heavy, the *astragalus* or upper bone of the plantar arch sinks down, causing a lowering of the arch, and a flattening of the sole of the foot. This defect, when slight, is known as Weak Ankle; when more decided, it is called Flat Foot. In bad cases the bone or top of the arch may descend so much as to render the *inner* side of the foot *convex* where it should be naturally concave. Or in still worse instances, the deformity may increase until one or other form of club foot is present.

Treatment.—If the deformity from weak ankles becomes great, the only remedies are peculiar supports constructed by a surgical instrument maker. Therefore the affection requires skilled advice. But it frequently happens that children show a tendency to weak ankles, which as they grow older disappears. *No child having such tendency should be encouraged to walk early.* The ankles and feet should be frequently bathed with strong salt and water; rubbing and properly directed manual extension should be daily practised, and boots should not be worn; the pressure of the top of the boot round the ligaments of the ankle tending to wasting and weakness of the part, instead of proving, as is popularly supposed, a support. A spring, or piece of cork, fitted in the sole of the shoe, so as to press against the flattening of the arch, is sometimes useful, but should not be worn if it causes pain.

COLIC.—This term is commonly given to all severe griping pains in the bowels, not primarily depending on inflammation. It is variously denominated from its different causes and circumstances. When its principal symptoms are sharp and spasmodic pains, it is called *Spasmodic Colic* (or vulgarly 'cramps' or 'spasms'); when with the pain there is miting, it is called *Bilious Colic*; if flatulency causes the in, it takes the name of *Flatulent* or *Windy Colic*; when is caused by indigestible food, it is called *Accidental Colic*; en accompanied by heat and tenderness in the bowels, it is signated *Inflammatory Colic*; when colic is attended with struction of the bowels and evacuation of fæcal matter by e mouth, it is called *Iliac Passion*. There is also a pecu- ır kind of colic called 'lead,' or 'painter's' colic.

Colic usually comes on suddenly, often in the night, with asmodic griping and twisting pain in the bowels, and nerally there is tendency to retraction of the muscles about e navel, which part appears drawn inwards. The bowels constipated at first, and distended with wind. At a later riod there is usually strong desire to stool, the passage of ich is attended with great relief. Colic, excepting when lammatory, is relieved by pressure on the bowels, the ient frequently rolling about or lying on the belly. Often, he patient is in bed, or lying on the back, the legs are so ıt that the thighs press on the bowels, the legs being ained in such position by the hands grasping the shins. is distinguishes the malady from inflammation of the wels, in which state pressure is very painful, and the ient lies on the back, and remains still, with his legs wn up (*vide* p. 66). There is ordinarily no feverishness h colic, while inflammation is attended with much fever. e *inflammatory colic* mentioned above and the *iliac ssion* or *obstruction of the bowels* are often sequels of the ıer varieties of colic, which, unrelieved by medicines, may s into the inflammatory stage, or the obstructed condition.

Colic should be further distinguished from a fit of the *wel*; from the beginning of *dysentery*; from the blind *es*; and from a *stone* passing through the gall duct. Dur- a fit of the gravel, the testicle is often retracted and the benumbed, with pain shooting down the inside of the gh; there is also pain in the loins, and frequent desire to make water. The griping pains felt at the beginning of dysentery are not so violent as those of colic, are less 'twisting' or 'wringing' in their character, and are attended with diarrhœa instead of constipation. The pain from blind piles is confined to the lower bowel, and there is probably bleeding. The pain from a stone in the gall duct is felt in the pit of the stomach, shooting through the body to the back.

Treatment.—The treatment of colic should be conducted after a consideration of the cause exciting the malady. If it appears to be an accidental colic, that is, arising from indigestible food, as salted meats, pork, salmon, rich gravies, and what is called 'high' game, an emetic, as Recipe 77, will generally remove the offending matter, and so relieve the pain. To assist the action of the emetic, the patient should take copious draughts of lukewarm water, after which a mild aperient, as Recipe 2, may be taken.

If the colic is of a bilious nature, that is, accompanied with nausea and violent vomiting of bilious material with constipation in the first instance, succeeded by desire to go to stool, the malady has probably arisen from a prolonged course of high living. If there is great retching, a mustard and water emetic (Recipe 77) will be desirable. Then, unless purging is very severe, the remedies are, Recipe 1, followed in a couple of hours by Recipe 2. The bilious variety of colic is often connected with, or caused by, a gall-stone passing from the gall-bladder into the bowels (*vide* p. 230), but when this is the case there is not the sudden desire to go to stool, as mentioned above.

If the colic is of the flatulent, or windy, or spasmodic variety, arising probably in nervous or delicate persons from unripe fruit, from eating too much vegetable matter (as cabbage or spinach), or from the habit of drinking too much tea, alkaline carminative draughts, as Recipe 67, or forty drops of sal volatile in an ounce of water, will be desirable. A full dose of tincture of ginger is a safe and popular remedy.

Effervescing draughts of citrate of magnesia (p. 14) may also be given every two hours. If these measures do not succeed, fifteen or twenty grains of chloral should be used. The griping pain in the belly, often experienced on first going out in the early morning cold in India, is a variety of spasmodic colic, but rarely requires medical treatment.

During any variety of colic, pain in the bowels may be much relieved by pressure with the hands, by hot fomentations, by friction with soap liniment, or by a mustard poultice. Also in any variety of colic, if pain is very violent, fifteen or twenty grains of chloral may be given, in addition to the other measures indicated.

If, *after* an attack of either of the above varieties of colic, pain or uneasiness in the bowels remains, a dose of fifteen grains of chloral will generally afford relief.

[At the commencement of an attack of colic, especially of the bilious variety, if the bowels are obstinately confined, it will be desirable, if possible, to obtain a stronger purgative dose combined with an opiate. This may consist of five grains of calomel mixed with one grain of extract of opium, to be followed, in three hours' time, by a draught composed of one ounce of sulphate of soda and thirty minims of strong tincture of ginger in two ounces of water. In the flatulent or spasmodic variety, if the medicines as above mentioned (in the large type) fail in affording relief, Recipes 6 and 16 may be obtained.]

INFLAMMATORY COLIC, AND ILIAC PASSION, OR OBSTRUCTION. —These conditions, as mentioned above, are generally sequelæ of the other varieties. Instead of the patient finding relief from the remedies, and pain being still *relieved* by pressure, the bowels may not have acted copiously, and the belly, especially on the right side, may become tender, with some degree of general feverishness. When colic runs on into such conditions, no purgative medicines should be given, and the patient should be treated for *inflammation of the bowels* (*vide* p. 66), or for obstruction (*vide* p. 69), as the symptoms indicate.

Caution.—When called upon to treat colic, inquiry should be made as to the existence of a rupture, the symptoms of the latter often at first resembling colic (*vide Rupture*, p. 529).

LEAD, or PAINTER'S COLIC.—Lead, introduced into the system, excites the symptoms of colic; viz. more or less severe intestinal pain, accompanied by a retraction of the navel, with nausea, vomiting and constipation. Lead in the system also produces other symptoms; the most important being a bluish, or slate-grey line on the gums, close to the teeth. At a later period, after the influence of the lead has become more confirmed, there is paralysis of the muscles of the forearm, causing inability to use the hands, which drop from the wrist. People whose employment obliges them to use lead are very liable to these affections, especially when they neglect the necessary precautions of cleanliness and ventilation—hence the name of the malady, 'painter's colic.' Lead colic may occur to some people from even sleeping in a newly-painted room; it may also arise from the introduction of lead into the body with the food or water (*vide* pp. 638, 643).

Lead colic should be treated in the same manner as advised for the bilious variety, unless remedies as below are available.

[If obtainable, give two drachms of Epsom salts, twenty minims of dilute sulphuric acid, and ten minims of laudanum in two ounces of water, every three or four hours, until the bowels have been freely moved; give also an injection, Recipe 106. After the first painful symptoms have ceased, iodide of potassium (Recipe 45) should be given. This, uniting with the lead in the blood, forms a soluble *iodide of lead*, which passes away in the urine and other excretions.]

CONSTIPATION.—A tendency to confined bowels is natural to many persons. It should, however, be recollected that the proper stimulus to the periodical action of the bowels is food perfectly digested. Instead, therefore, of constantly resorting to purgative medicines to remove constipation, it is better to accomplish the object by care in not eating hurriedly, so that the food may be well masticated, and by some change of diet. A glass of cold water taken every morning on rising; or, fruit eaten in the morning, oatmeal porridge for breakfast, smoking after breakfast, brown bread eaten instead of white, the avoidance of pastry, regular exercise, and regular, but not hurried, visits at a stated time to the water-closet, will generally be successful. Figs, prunes, and stewed fruits are valuable auxiliaries; but vegetables are objectionable if they produce flatulence. Such measures may be assisted at first by castor oil or senna, or Recipes 1 and 2, which are good ordinary aperient doses. A furred tongue, loss of spirits, and of appetite, attend confirmed constipation. It is also often one of the causes of piles (*vide* p. 300), of fissure of the anus (*vide* p. 226), of varicocele (*vide* p. 399), of varicose veins (*vide* p. 400), of sciatica (*vide* p. 325), of cramps in the legs and thighs (*vide* p. 357), of discharges from the privates (*vide* p. 298), of colic (*vide* p. 110). The first tendency to constipation should therefore be guarded against, lest it become habitual. And this is more likely to occur in India than in temperate climates. The bowels, particularly the large intestines, partaking in the general debility and want of tone resulting from lengthened residence in the tropics, become eventually less able to expel their contents, which leads, not only to occasional constipation, but also to accumulation of fæcal matter in the gut, and sometimes to the condition described as chronic inflammation of the *cæcum* (*vide* p. 68). When the large intestines are in fault, the tongue is furred, the breath fœtid, the complexion sallow, and sometimes jaundiced. There are occasional attacks of colicky pain, and piles are very generally present. For such a condition occasional doses of castor oil, or sulphate of soda (Recipe 2)—sometimes one suiting best, sometimes the other—are among the most desirable medicines. One grain of ipecacuanha taken early in the morning is often very useful in torpor of the intestines. Rubbing the bowels with soap liniment will also frequently promote healthy action. Then a regimen, as noted above, should be adopted, while in many cases, instead of repetition of medicine, the periodical use of an enema syringe will prove the better course. This is particularly the case when the constipation results from accumulation of fæces in the lower gut close to the fundament, known by the stools consisting of round, hard, black masses or balls, for the expulsion of which medicines are not well adapted. Some individuals state their bowels are regular, simply because they go to the closet every day, when in reality they suffer from habitual constipation, as they only pass small lumps of hard fæces. Occasionally, also, there may be straining, and the hard lumps may be passed with a little watery discharge, the result of the irritation they cause. This is mistaken for diarrhœa, instead of being recognised as the effect of constipation.

[Other medicines useful for occasional constipation occurring to ordinarily strong and healthy people, will be found in Recipes 9 and 10. For weakly people, and when there is suspicion of accumulation of fæcal matter in the lower bowel, Recipes 13 or 15 will be more suitable, provided piles are not present. If present, Recipe 12. Torpid bowels may also generally be much benefited by one quarter of a grain of extract of belladonna taken morning and evening. The extract may be made into pills, and the dose may be gradually increased, by a quarter of a grain, every five or six days, up to one grain. Various aperient mineral waters are often of service. Of these both Friedrichshall and Hunyadi Janos are deservedly in high repute, the latter having the advantage of being almost tasteless.]

Constipation of Children.—Children, and especially infants, often suffer from constipated bowels, and particularly so in India. In such a condition the stools made are often like little balls, scanty, hard, frequently white in colour, and passed with straining. This state may be associated with other evident disorders, as colicky pains, teething, fœtid breath, acidity, inaction of the liver, worms, indigestion of the food, vomiting, and, in females, discharge from the privates. At other times there is simply constipation, the child being otherwise apparently quite well, or the only indication of ill health may be uneasy sleep and fretfulness. But the condition should never be neglected, as fever and convulsions are sometimes caused in children by accumulation of fæcal matter in the bowels. As a general rule, the constipation of infants and children is best treated by some change in the food given; or if the infant is being suckled, by some change in the food of the nursing woman. Or a dose of castor oil may be given to the latter, which will often be followed by some diminution of the infant's costiveness. Or a little cow's or goat's milk, prepared according to the remarks on the 'Feeding of Children,' in Chap. VI., may be given to the infant. Or if the child is being fed by hand, a change from cow's to goat's milk, or *vice versâ*, may be tried. When it is necessary to administer opening medicines to infants or young children, the choice lies between magnesia, rhubarb, castor oil, and senna. If there is costiveness with flatulence, fœtid breath, and acidity, citrate of magnesia may be given in doses according to the age of the child (*vide* p. 14). This is a good laxative medicine for a child, having little taste, and it may be rendered still more palatable by a small proportion of sugar and water. If the child is old enough to drink the draught off immediately, the addition of three or four grains of carbonate of soda increases effervescence, and also efficacy as an antacid. If there is inaction of the liver and white or clay-coloured stools, senna may be used in the manner mentioned in Chap. I. p. 29.

[During the early months of life, especially in children brought up by hand, probably after a previous attack of diarrhœa, constipation with hard clay-coloured stools, or mottled green motions, may occur. The stools are passed with pain and screaming, and there is much wind, making the child cry incessantly. A grain of podophyllin should be dissolved in a drachm of brandy, and one or two drops of the solution should be given to the child twice a day on a lump of white sugar. It will be well to commence with one drop, increasing if no effect is produced. Usually under this treatment the motions immediately become natural, the flatulent distension of the belly disappears, and the child quickly improves.]

Infants, in addition to constipation, also suffers from indigestion of the food and vomiting, bringing up their milk in lumpy masses, some of which pass through the intestines, causing colic and wind. Under such circumstances, Recipe 42 may be used; and lime-water, Recipe 41, will probably be beneficial.

If there is no evident deviation from health attending the constipated state as described above, castor oil may be used. The unpleasant taste of this oil may be much disguised by flavouring with peppermint water, or by administering it with a small quantity of milk. The administration of a small quantity of treacle with the morning and evening meal sometimes answers admirably. The insertion of a pawn stalk, or a pill made of glycerine soap into the fundament, may be employed for infants. Or a piece of soap may be pared to the thickness of a quill, dipped in salad oil, and introduced into the anus. This will frequently be followed by a free, easy stool. The application, by rubbing over the bowels, of cod-liver oil, or of cocoa-nut oil, the friction being principally made from above downwards, is also often very efficacious. Lavements or injections are sometimes used; but it is well to avoid these means if possible, although they are excellent remedies in cases of great debility with constipation. Warm water is perhaps the best injection. Two drachms may be injected, if the patient is an infant. From one year to five years, one to three ounces is the proper quantity; from ten to fifteen years, four ounces to six ounces. The method of administering an injection to an infant demands particular notice, in order to prevent injury. The infant should be placed on the left side, with the knees drawn up. A gum-elastic pipe smeared with oil should be gently passed for an inch, with an inclination towards the left side, and the fluid should be propelled very gently from the receptacle. An india-rubber bottle, furnished with a gum-elastic pipe screwing on to the mouth, is the best kind of apparatus.

The frequent use of purgatives or of the enema syringe is, however, deprecated. The former weaken and disorder the stomach when habitually given; while the latter, by persistent use, impairs the muscular tone of the rectum or lower gut. As above mentioned, the constipation of children should, if possible, be overcome by change of dieting.

[When for children of two years of age and upwards the above-mentioned remedies do not prove satisfactory, mineral waters, as Pullna, or Hunyadi Janos water (the latter having the advantage of being almost tasteless), may be tried. Or, it may be well to obtain and use Recipe 16, known as 'Gregory's powder;' or thirty grains of rhubarb powder, two scruples of bicarbonate of magnesia, and two ounces of peppermint water should be made into a mixture, of which a child two or three years old may take a tea-spoonful every four hours. For younger children and infants, a mixture composed of six drachms of castor oil, of yolk of egg, and peppermint or aniseed water, of each two ounces, and of white sugar two drachms, is a very good combination. To an infant six months old a tea-spoonful may be given; at one year old a tea-spoonful and a half; at two years old, a dessert-spoonful.]

CONSUMPTION.—This disease, as met with in Europe, is less known under the brighter sun and in the warmer atmosphere of many parts of India. But in some districts, as in the Punjaub, in Calcutta, and in Bombay, it is frequently seen among Natives. Consumption, however, according to the writer's experience, does not attack Europeans so frequently as in colder climates, and if not too far advanced, it may be arrested by the warmer climate of the tropics. A short description of consumption is considered advisable, in order that it may be known when a person has *not* the symptoms of the malady. For individuals, both in India and Europe, are often said to be consumptive, or 'in a decline,' when there is nothing of the kind present.

Consumption consists in the decay of the tissues of the lungs, arising from the deposit in their texture of a material derived from the blood, technically called 'tubercle.' The first symptom noticed is short dry cough, most troublesome on rising in the morning. The patient is easily fatigued, flushes on slight exertion, and experiences difficulty in ascending heights or stairs. Then expectoration of mucus occurs, and probably spitting of blood. The pulse is also quicker than natural, and there is generally a sensible increase of temperature towards evening. This condition may persist for weeks or months, even sometimes for years. Many persons, indeed, coming to India in this condition, which may be considered the first stage of consumption, are prevented growing worse by the change of climate, but suffer as above either continually or periodically—their complaint being often considered by themselves and friends due to weakness or febrile influences.

In the second stage of the disease the cough grows worse, the expectoration more profuse, and becomes of a yellow colour, formed in globular masses which float in water, and are sometimes streaked with blood. *Hectic*, or night fever (*vide* p. 223), occurs, followed by profuse night sweats; and although the appetite may continue good, flesh and strength are lost. There are often now sharp cutting pains in the side and chest, the patient may lose his voice, and diarrhœa may occur. Ultimately the patient dies from exhaustion, or from a large blood-vessel giving way in the lungs, when large quantities of bright-coloured blood are passed by the mouth. Until the latest stage of this malady the patient is generally hopeful of recovery, and frequently fails to recognise his danger.

Treatment.—More may be done to prevent than to cure this disease. As it is often hereditary, those of consumptive family should be especially careful as to their mode of life. Avoiding injudicious 'coddling,' they should sleep in well-ventilated rooms, should avoid late hours, should habitually live generously, but not richly or intemperately, should shun exposure to cold and damp, and should wear flannel next the skin. When the disease has declared itself, cod-liver oil and tonics, as iron and quinine, are beneficial. Medicines tending to allay the cough are also required. Too much stress cannot be placed on the necessity of parents of consumptive family bringing up their children under strict discipline as regards diet, personal hygiene, and general sanitary conditions of life; for such children are not only liable to consumption as they reach adult age, but are also prone to the affection named *Atrophy*, or wasting (*vide* p. 61), to *water on the brain* (*vide* p. 77), and to other ailments.

CONVULSIONS.— *Vide* Fits, Epilepsy, Hysteria, Tetanus, Hydrophobia, in all of which diseases convulsions are prominent symptoms. It very rarely occurs that convulsions present, unless as part of, or arising from, some other malady, although sometimes, especially in the case of children, such malady is not readily evident to the non-professional observer. Convulsions may attack one limb, or one half of the body, or may be extended over the whole body. They may persist without any decided interval of cessation, or, as more usually happens, they may recur after intervals of perfect quiet. Convulsions depend on some cause irritating the nerves of the part, and this irritation may be either at their seat of origin in the brain or spinal cord, as when inflammation occurs in these organs, or when spiculæ, or splints of bone, are driven into them from accident. Or otherwise, the irritation on which the convulsions depend may be at the ends of the nerves, where they spread on the surface of the skin, or on the surface of the bowels. Of this variety of convulsions *tetanus*, or 'lock-jaw,' from injuries of the hand; convulsions of lying-in women from irritation in the womb; in children from teething, or from constipation, or worms, are illustrations.

CONVULSIONS OF CHILDREN.—A few days after birth an infant is apt to suffer from slight convulsive movements, to which nurses give the name of 'inward fits,' or 'nine-day fits.' The baby lies as if asleep, rolls its eyes about, or draws them up underneath the lids, perhaps moans gently, breathes a little heavily, has twitchings of the muscles of the hands, and sometimes there is a livid ring round the mouth. This condition either arises from indigestion, and is a warning that the quality of the food should be looked to (*vide* p. 664), or it may arise from something wrong with the navel (*vide* p. 679), which should be investigated. It is to be temporarily relieved by gentle friction over the bowels, by giving one or two drops of aromatic spirits of ammonia (*vide* p. 8), or, if there is also wind and acidity, by using Recipe 42.

But the more serious convulsions of children generally occur in delicate infants about the period of teething, especially when children have been fed with improper food. Convulsions from teething, or, indeed, from any other cause, happen much more rarely to children nourished on human milk, than when fed on other foods. *Secondly*, convulsions may arise from the irritation of worms in the intestines. *Thirdly*, they may be caused by constipation, and the consequent collection of hard fæcal matter in the bowels, or even from the wind, or flatulence, to which such conditions give rise. *Fourthly*, they may result from the irritation caused by prolonged diarrhœa. *Fifthly*, they may come on during fever, or from hooping-cough. *Sixthly*, they have been known to arise from some local irritation, as, for instance, a blister, or from a pin in the clothing pricking the skin. *Seventhly*, they have followed suckling the child, after the mother has given way to a fit of passion. *Lastly*, they may be symptoms of serious maladies, such as epilepsy, or water on the brain.

An attack of convulsions in a child does not usually come on suddenly. There are generally indications that convulsions are threatening, although such signs may not be recognised. A marked sign of a tendency to convulsions, or, indeed, it may be said, a minor degree of convulsions, is the turning in of the thumbs towards the palms of the hands. Whenever this is observed the child should be carefully watched, and great attention should be paid to the state of the bowels and teeth, and to the diet.

Sometimes children are subject to a nervous affection which has been called *night screaming* or *night terrors.* These children wake up suddenly, apparently horribly frightened, and commence screaming violently. While thus screaming, they are generally quite unconscious of what is occurring around them, and cannot recognise, nor be comforted by their friends, or they think some object near them is some animal coming to attack them. The screaming may last a few seconds, or it may be continued for an hour or more, and in confirmed cases the sudden waking up and screaming may be repeated several times during the night. It is frequently attributable to dreams or nightmare, or to the cold feeling arising from *wetting the bed* (*vide* p. 405), with which it is often associated. Sometimes the cure of this latter ailment will stop the fits of night screaming. But generally the cause is something wrong, arising from teething, or from worms, or from the digestive organs, and as a result secondarily affecting the nervous system. This is evidenced by convulsive signs, as turning of the thumbs across the palms, clenching of the fingers, contraction of the toes, or squinting, being frequently present during the screaming fit, which may terminate in an unmistakable attack of convulsions.

An attack of convulsions in a child, when fully formed, usually presents the appearance of spasmodic contractions of the arms and legs, which are suddenly rendered tense and hard, and are drawn upwards and inwards towards the body; the eyes are also turned up under the lids, the mouth perhaps screwed to one side, while the teeth grate, the lips twitch, and froth appears at the mouth. The head and neck may be drawn backwards, or to one side. Sometimes the convulsions are limited to one side of the body. During the fit, the urine and fæces may be discharged involuntarily, and a clammy moisture breaks out over the whole body. The pulse is weak and often irregular, the breathing laboured, and the pupils of the eyes will be found either contracted or dilated; but always insensible to light. This condition may last for a few minutes, or may endure with intervals of incomplete cessation for some hours, the child being more or less insensible during the whole period. At last the child falls asleep, or cries loudly, or lies in a kind of stupor, slowly returning to consciousness, or becoming profoundly insensible.

Treatment.—The general treatment of convulsions occurring to children may be thus described. All clothing about the neck, chest, and head should be rapidly loosened, plenty of fresh air should be admitted, and the face should be fanned, and sprinkled with very cold water. Then, as soon as possible, the child should be put into a hot bath of the temperature of 96° to 98° Fahr., where it should be kept for ten minutes. While in the bath cold water may be applied to the head. If from natural debility or long illness the child is considered too weak to bear the hot bath, it may be enveloped in a blanket wrung out of hot water, round which two or three dry blankets should be wrapped. The child should remain thus covered for fifteen minutes, when it should be gradually uncovered and well dried with soft warm towels. At the same time, if the convulsions have not supervened on prolonged diarrhœa, a purgative, as castor oil, or sulphate of soda, whichever may be at hand, should be given in doses according to the age of the child (half a tea-spoonful of castor oil for an infant six months old, and a tea-spoonful at one year old—of sulphate of soda half a drachm at six months old, one drachm at a year old, in a little water), to be followed in the course of an hour by an enema composed of, for an infant of six months old, one drachm of castor oil in one ounce of soap and water; at one year old, of two drachms of castor oil and two ounces of soap water. To unload the bowels is, in the majority of cases, a matter of primary importance, and, therefore, if not freely moved, the medicine and enema should be again used after the lapse of two or three hours. If, however, the convulsions have followed diarrhœa, and the child is weak and debilitated, purgatives should not be given. In such cases small doses of chlorodyne, according to the age of the child (*vide* p. 10), should be administered every two hours; or, if available, chloral may be given in a dose of four grains for a child two years old, and two grains at one year old; the dose to be repeated twice at an interval of two hours. If, as is sometimes the case, the convulsions appear to arise from an overloaded stomach, and the child makes efforts to vomit, such efforts should be encouraged. If the child can swallow, weak mustard and water (a quarter the strength of Recipe 77) may be given as an emetic, or otherwise the throat may be tickled with a feather. If, as often happens, the child is unable to swallow, no attempts should be made to give medicines (excepting as mentioned below), as fluids put into the mouth under such circumstances will not pass into the stomach, but will probably trickle into the windpipe and do mischief. It is true that fluids may be given through the nostrils, but in the absence of medical aid this plan is not recommended.

When the child comes out of the bath, a mustard plaster, or if available the mustard leaf (Recipe 109), protected by muslin, should be put over the stomach, and kept on until the skin is well reddened. In all cases if the gums are hot, and tumid, and tender, they should be lanced (*vide* p. 397). Sometimes lancing the gums when in such condition has been immediately followed by the cessation of the convulsions. If the above measures do not succeed, and if there is *no heat* of head, *ten drops* of chloroform may be sprinkled on a handkerchief, and the latter held two inches from the child's mouth and nose, so that it may inspire an atmosphere impregnated with chloroform, which will soothe the system and diminish the convulsive tendency. Unless the seizure has been preceded by prolonged diarrhœa, it is desirable to maintain a free action of the bowels for some days after an attack of convulsions, and for this senna tea may be employed (*vide* p. 29). If the child has been previously flatulent, and the stomach out of order, antacids, as magnesia and soda, are indicated. In such circumstances citrate of magnesia (*vide* p. 14) may be given. The existence or otherwise of worms should also be ascertained, and if necessary the treatment appropriate for the expulsion of worms (*vide* p. 421) should be adopted. The teeth also should receive more than ordinary attention, for some time after an attack.

Great care should at all times be paid to the diet of children liable to this dangerous affection. One of the most common causes of convulsions is excessive and improper feeding. It is also worth remembering, that it has sometimes seemed that convulsions in children may be caused by hysterical or other excitement in the nurse, when the remedy will be change of nurses; or, if this be impossible, the substitution of animal milk.

[If during an attack of convulsions the child *cannot swallow*, a little croton oil should, if possible, be procured from a chemist, *half* a drop of which should be mixed with a little sugar, and placed with a feather on the back part of the tongue. If the child is *able to swallow*, and the oil, or sulphate of soda given as mentioned above, do not thoroughly open the bowels, one grain of calomel and two of rhubarb should be procured for a child one year old, and two of calomel and two of rhubarb for a child of two years of age. In *any case* it will also be desirable to procure bromide of potassium (Recipe 46), a table-spoonful of which may be given to a child two years old, and a dessert-spoonful to a child one year old, every two hours.]

CORNS.—These troublesome affections are growths from the true skin, most usually caused by pressure of the shoe on prominent parts of the feet. If change of shoes or boots, and attention to the 'fit,' do not cure or relieve corns, they may be treated as follows:—

Hard corns on the sole of the foot, or on the sides, or on the toes, are best treated by filing with a sharp cutting file having a convex side. The corn should be thus filed once daily until a slight pain is experienced, which shows that the roots are approached. By continuing this treatment, and by avoiding pressure from hard or ill-fitting boots, or from rough, creased, or darned stockings, corns in such situations may be often thoroughly cured.

Soft corns generally occur between the toes, and are best relieved by keeping the toes separate by a little cotton wool placed between, and by taking care that the boots are not too tight. When pressure is thus prevented, and the parts kept perfectly clean, soft corns between the toes will often disappear.

After any kind of treatment for corns the fit of boots and shoes must be attended to, so that no pressure from ill-made boots or hard leather may be made on the part; if so the corn will probably return.

[If the above measures do not succeed, corns may be treated by the application of *liquor arsenicalis* two or three times daily. Stronger applications are, acetic or nitric acid, which should be *lightly* applied by means of a small stick of cedar wood or a small camel-hair brush. *Only the centre* of the corn should be thus touched, and if a soft corn the toes should be kept asunder for a few minutes, in order that the acid may soak in. Care must be taken that the acid does not touch any part except the corn. Then apply between the toes a small portion of cotton wool. This may be repeated several times every other day until the corn ceases to be inconvenient. Chromic acid, similarly used, is also successful.]

CORNS AND BUNIONS sometimes suppurate from the pressure of the boot, or as the effect of injury. They then require the removal of all pressure, rest, poultices, and afterwards healing ointment (Recipe 86).

CROUP.—This is essentially a disease of children. It sometimes commences quite suddenly, the child waking in the night with difficulty of breathing. In most instances there is for some days a little feverishness, accompanied by sneezing, watering of the eyes, and dry cough, the child appearing to have only a common cold. The child is probably cross and irritable, and the voice perhaps husky and hoarse. After such premonitory symptoms, or without them, the child suddenly awakes with an appearance of suffocation, and with a hoarse, ringing cough, to which, from its peculiar sound, the term 'brassy' has been applied. The sound of this cough is so peculiar, that once heard it can scarcely be mistaken. It resembles either the crowing of a cock, or the bark of a dog, and has a ringing, metallic tone. The breathing is difficult, and the air is *drawn in* with a sound resembling the passage of air through muslin, or through a metallic tube. The cough, as also the difficulty of breathing in a lesser degree, occurs in paroxysms, in the intervals of which the child may have a little restless sleep. At first the cough is dry, but at length *a mucous fluid* is brought up, after which much relief may be experienced, and the disease may subside.

If this favourable termination of the attack does not occur, tubes, or flakes, of a whitish membranous substance, appear. The efforts to bring up such material are very great; the countenance is flushed, sometimes almost livid, and the body is covered with perspiration, the hands are clenched, the arms thrown about, the bed-clothes tossed away. The child sometimes sits erect, sometimes lies down, and sometimes the head is rigidly bent backwards. The eyes project, and the whites of the eyes become congested, red, or 'bloodshot.' The pulse is quick and hard, the skin burning, and the thirst great. The little patient frequently carries the hand to the throat, as if to remove some obstruction. In the morning, perhaps, the symptoms somewhat abate, and the child continues better during the day; but this seeming step towards recovery is often deceitful—the return of night being accompanied by a re-accession of suffering. If the case ends favourably, there is gradual amendment, after a considerable amount of *flaky* material has been coughed up. If the disease terminates fatally, the paroxysms of coughing and the difficulty of breathing become more violent and incessant, until from want of strength the cough grows husky, faint, and muffled, when the child dies, partly from exhaustion and partly from suffocation. Often, also, towards the end of the case, one or more convulsive seizures occur, during which the patient may expire. The duration of the malady may be from twenty-four hours to five days.

It should be understood that croup consists essentially of the formation of a white membranous deposit in the windpipe, and air-passages leading to the lungs, which deposit blocking up these air-tubes, or the small aperture leading from the throat to the windpipe, causes the extreme difficulty of breathing characterising the disease. But milder attacks of a croupy character may occur, in which the disease does not proceed so far as to the formation of this deposit. In such cases the symptoms are as before detailed until the coughing up of *mucous fluid is mentioned* (*vide* p. 128); when, after expectoration, this mild variety of croup generally passes off.

The period between one year of age and five, is the time during which children are most susceptible to croup. After five years of age the tendency to croup gradually declines, while the danger to be apprehended from an attack is less than before that time of life.

The causes of croup are generally admitted to be cold, or exposure to damp changeable atmosphere. But there is in some children an unexplainable constitutional aptitude or tendency to attacks of the disease, which renders them liable to suffer from an exposure or change of temperature so slight, as not to be felt by other children; also when a child has once had an attack, a recurrence one or more times is not unfrequent. Croup has also—doubtless from some unknown atmospheric condition—prevailed epidemically in various localities. As a general rule, low, damp positions are favourable to croup; especially if exposed to north-easterly winds.

For the distinctions between *croup* and *diphtheria*, see *Diphtheria*, pp. 146, 149.

Treatment.—On the first appearance of croupy cough or hoarseness, expectorant medicine as ipecacuanha and paregoric (Recipe 31) should be given, and the patient should be well protected from cold, especially at night. In children subject to croupy attacks, the malady may often be stopped in the first stage by giving, when the child wakes up with hoarse cough, a tea-spoonful of *salad* oil, which, as it is swallowed, lubricates the parts about the entrance of the windpipe; and by lighting several lamps in the room, or otherwise increasing the temperature, often in India so much less by night than by day. For this purpose, when children are subject to croup, several lamps should be put ready, so that they may be lighted immediately. Or, if these means are not available, the child should have some hot tea, and be covered up warm. Under such treatment the malady may perhaps pass off as a common cold or cough, with running of the nose (*vide Catarrh*, p. 97).

When undoubted croup is present, an emetic should be at once given. This for a strong child of two and a half to three years old, should consist of three drachms of ipecacuanha wine in two or three ounces of warm water. If the patient is not a strong robust child, two drachms of ipecacuanha wine with two or three ounces of water, should be given every five minutes till free vomiting occurs. The action of the emetic should be assisted by a warm bath of from 98° to 100° Fahr. in temperature, in which the patient should remain about eight minutes, being then well and quickly dried, and wrapped in blankets. If the emetic appears to produce relief, it may be repeated in about one hour, after which ipecacuanha wine in eight-drop doses with a drachm of water should be given every half-hour. Leeches should also be applied over the *upper part of the breast bone*, in the number of one moderate-sized leech for each year of the child's age. But when the leeches come off the bleeding should be stopped, which can easily be effected by pressure with the finger on the leech bite against the breast bone. After the vomiting from the emetics has ceased, if the bowels have not acted freely, a tea-spoonful of castor oil should be given. Neither opium nor any other narcotic agent should be used. As blisters or other counter-irritants rarely seem to do good in this disease, their use is not recommended, but a sponge wrung out of hot water and applied to the throat often proves beneficial. In the latter stages of the complaint stimulants, as wine or brandy and water, are indicated. *Throughout the treatment it must be recollected that the object is to combat the inflammation, not to weaken the child*; therefore, if possible, the patient should be induced to take strong broth or other nourishing fluids at any period of the disease; and if the child cannot swallow, they should be given as injections; or, if practicable, *digested enemas* (*vide* p. 597) should be used. Except in the last stage of the disease, stimulants are not usually desirable.

The atmosphere should be rendered moist by boiling water in the room, and allowing the steam to escape; the temperature of the apartment *must* also be maintained *equable* and warm. In a cold climate the proper temperature of the sick chamber would be 65° Fahr., but in India it must generally be much higher. But however this may be, it should be maintained as *equable as possible* both day and night, and all draughts of cold air should be prevented.

When all measures fail, opening the windpipe has sometimes proved successful; but this operation can only be undertaken by a surgeon.

CROUP, SPASMODIC.—Croup of a spasmodic, not inflammatory description, popularly known as 'child crowing,' not an unfrequent malady. It depends on spasmodic or convulsive action of the muscles about the upper part of the windpipe, and is to be distinguished from true croup by the very sudden accession and decline of the fits or paroxysms, and by the perfect freedom of the breathing in the intervals. Also by the absence of fever or catarrhal symptoms, and generally by the absence of cough. It is usually connected with, and often immediately caused by, the irritation of swollen gums during teething, by glandular enlargements in the neck, and by constipation, or accumulation of fæcal matter in the intestines. It is in reality one form of the convulsions of children (*vide* p. 121).

The principal feature of this affection is a remarkable *crowing* inspiration, unattended with cough, and coming on suddenly often on first waking from sleep. For a minute or so the child makes ineffectual efforts to draw breath, and struggles violently, but at length the difficulty is overcome and breath is *drawn in* with a loud crowing sound. The difficulty of breathing is chiefly during inspiration, and in the intervals between the paroxysms the difficulty ceases, which does not happen in true croup. Of these attacks, there may be several during the day or night. Infants in poor health often wake up in the night with a start, and for some time cannot get their breath, a condition designated by nurses 'a catch in the breath,' but which is in reality a form of spasmodic croup. In extreme cases the face becomes livid, the whites of the eyes bloodshot, the thumbs are clenched in the hands, the fingers and toes are bent, and the joints of the wrists and ankles are forcibly turned inwards; occasionally death results from suffocation or exhaustion, but the malady is not so dangerous as inflammatory croup.

Spasmodic croup occurs to children of similar ages as true croup, especially during the period of teething, and is most common in weakly scrofulous children, who are being brought up by hand. It may occur up to two years of age, but is rare after twelve months.

The spasmodic tendency of the parts about the throat sometimes excites a peculiar condition, in which the child is able to swallow solids with ease, but chokes when it tries to drink fluids.

Treatment.—During the paroxysm cold water should be dashed on the face and chest, the child should be exposed to a current of air, and the back should be briskly rubbed. If necessary, as soon as a warm bath can be obtained, the child should be immersed in the water, or its feet may be put in mustard and warm water if a hot bath is not procurable. A stimulant, as a tea-spoonful of wine or brandy and water, will also be desirable; and if the fit comes on after a hearty meal, an emetic, as a drachm of ipecacuanha wine with two drachms of water should be given. But it is during the intervals between the attacks that curative agents are most serviceable, and these must depend on the causes producing the irritation. The condition of the gums and teeth must be investigated (*vide Teething*, p. 374). Constipation or worms must be removed (*vide* remarks on these conditions, pp. 116, 421), and swollen glands in the neck must be treated on established surgical principles (*vide Enlarged Glands*, p. 231). If the child is being brought up by hand, a wet nurse should be procured.

Children subject to any variety of croup require great care as regards their diet, and attention in avoiding catching cold, or ordinary cough, which in those constitutionally predisposed is liable to terminate in an attack of croup.

[Children subject to spasmodic croup should also be treated by bromide of potassium, Recipe 46, in doses corresponding with the age of the child. *Vide* p. 5.]

COUGH.—Cough is rather a symptom of other affections than a malady in itself; it is an accompaniment of throat affections, stomach derangements, of mild or severe bronchitis, of inflammation of the lungs, of pleurisy, of liver diseases, and of some other maladies. Cough, in the popular acceptation of the term, is, however, mostly the consequence of cold, damp, or draughts, and is usually accompanied with some degree of *bronchitis* (*vide* p. 87). Ordinary cough may be best relieved by measures which promote perspiration. Three or four grains of Dover's powder may be taken twice or thrice a day; or Recipe 30. If the urine is thick, Recipe 31.

[A good cough mixture may be made as follows: Take of honey and treacle of each four ounces; of vinegar five ounces; mix and simmer them over a slow fire, then add a dessert-spoonful of ipecacuanha wine, and the same quantity of paregoric. The dose is two table-spoonfuls three or four times a day.]

DELIRIUM TREMENS.—This is the peculiar delirium of drunkards, and presents certain characteristics differing from any other kind of delirium. It is generally caused by continuous or prolonged drinking, but may follow a single indulgence in excess. The patient is incoherent, and fancies he sees all kinds of frightful objects, especially at night; his hands tremble, his eyes wander, his pulse is feeble, his skin moist, he has no appetite, and he cannot sleep. The patient, however, is seldom violent, and may be generally restrained without force, although the reverse occasionally happens. But there is cunning with the delirium, and the patient may secrete such articles as razors or knives, so that he requires watching. Often the person exposes himself to injury by endeavouring to effect an escape from his attendants, or from imaginary dangers. In fatal cases the delirium is succeeded by insensibility, in which state the patient dies after a period in which heavy breathing, twitching of the limbs, and involuntary discharge of fæces, with perhaps convulsions, are the most marked symptoms.

The spectral and mental delusions in delirium tremens are in some respects peculiar. The patient may declare there are snakes under his pillow, or he may be seen listening to the arm of a chair, which he believes to be a hissing serpent; or he may accuse a bystander of a design on his life, or imagine he is being besieged by a party of soldiers; or he will pretend to be busy with his daily avocations; or imagine himself to be possessed of great wealth, which he will either hoard or lavishly distribute.

Delirium tremens must be distinguished from the delirium accompanying inflammation of the brain and its membranes. This is accomplished by a consideration of the history of the case, delirium tremens occurring in persons addicted to drink; inflammation of the brain originating without any evident exciting cause, or after exposure to the sun. Again, in delirium tremens there is an absence of headache, and light is not painful to the eyes, while the reverse obtains in inflammatory delirium. Similarly, there is in delirium tremens an absence of febrile symptoms and a moist skin, the reverse being the case in affections of the brain. In delirium tremens there is also generally a smell of liquor with the breath. It sometimes, however, happens that delirium tremens occurs in persons who, while drinking hard, have also from exposure to the sun, a congested or even inflammatory condition of the brain. The symptoms of delirium tremens may then be somewhat less characteristic than as above set forth. In doubtful cases, in the absence of medical aid, it will be best to treat the case as delirium tremens.

Treatment.—In some instances purgative remedies are desirable at the first. These cases are known by the flushed bloated appearance, the very foul tongue, the bad-smelling breath, and the history of a recent surfeit of eating as well as of drinking; in such cases Recipe 1, followed in two or three hours by repeated doses of Recipe 2, may be given with great advantage.

In other cases the strength must be supported by diet of the most nutritious kind in a fluid form, such as yolk of egg, soups, and the like, which should be given often in small quantities. When there is great depression and feeble pulse, with moist pale tongue and pallid countenance, a small quantity, as one ounce, of wine, or half an ounce of brandy, may be administered with the soup, or in the shape of 'egg flip.' If the patient continues to take and digest food the danger is materially diminished, and food adapted to the feeble state of the system, with good nursing, is the *sine quâ non*. The danger all through the case is from exhaustion, but this exhaustion cannot be fully combated by its cause, viz. alcoholic stimulants; therefore reliance must be placed principally on nourishing food. The disease, in short, must be treated as one curable, not by withholding stimulants altogether, but by using them in strict subordination to good nursing, and careful diet and regimen.

Formerly opium was generally used as a remedy in delirium tremens, but the administration of any narcotic, notwithstanding the apparent indication in the sleeplessness of the patient, requires caution, and should scarcely be given except under medical advice. But when there is any natural tendency or desire to sleep, a dose of twenty grains of chloral may be given. It must, however, be recollected that opiates are only safe in delirium tremens when used with the object of aiding or seconding the natural cure of the disease. Secondly, that opium should never be given in larger doses than would be safe in any other malady; otherwise, narcotic poisoning may be substituted for alcoholic poisoning.

It is seldom that persons with delirium tremens require any kind of mechanical restraint, as they may generally be sufficiently controlled by judicious attendants. Remarks on the restraint of persons suffering from delirium will be found at p. 40.

Delirium tremens is not, unfortunately, the only malady to which excessive drinkers are subject. Delirium tremens usually arises from a fit of drinking, or a debauch; but persons who do not thus exceed, yet who are constantly taking fermented drinks (although not in sufficient quantities to produce delirium) are liable to fall into a condition to which the term *Chronic Alcoholism* has been applied. The signs and symptoms are restlessness, sleeplessness, growing indecision of character, with loss of mental and moral power—the latter exhibited by a tendency to tell falsehoods about drink. The features become bloated and flabby, the eyes red and watery, and the whites of the eyes often yellowish. The nose may be red, and there are generally enlarged vessels to be seen ramifying about the nose and cheeks. There is also trembling of the hands. Spirit drinkers generally become emaciated, but malt-liquor drinkers often grow obese. Then, the digestive organs are always affected, indicated by disgust for food, especially in the morning, by morning sickness or nausea (which the person probably endeavours to relieve by a secret glass of his favourite drink), by a furred tongue, foul, sour breath, and irregularity of the bowels with fœtid stools. If the constant habit of drinking is not checked, the person probably becomes affected by a special form of liver disease, known as 'gin-drinker's liver,' or *cirrhosis*; or by chronic inflammation of the stomach; or he grows silly, and perhaps becomes wholly or partially paralysed.

Chronic Alcoholism can always be cured if the person will keep away from drink; but so great is the 'drink-craving' that the majority thus giving way are unable to avoid taking liquor, and will do so when opportunity presents, notwithstanding any promise to the contrary. When such patients come under medical treatment, they usually do so for the dyspeptic symptoms detailed above, and are not ready to confess to the amount of drink they consume, or to admit that their ailments arise from such a cause. The great points of treatment are to keep the patient altogether from liquor, and to give plenty of food; but as there is a disgust for solid food, it should be given in the shape of milk, beef-tea, soups, meat extracts, and puddings. The morning sickness may be often much relieved by soda-water and milk in equal parts, and drop doses of ipecacuanha wine may be given in a little water every two hours, for the same purpose. Craving for drink is best combated by thirty-minim doses of tincture of capsicum, or of strong tincture of ginger, in two ounces of water, every three hours, or when craving or sinking feelings occur.

[In all cases of the kind, the following recipe may be given with great advantage. Take of bromide of potassium one drachm; tincture of capsicum one drachm and a half; aromatic spirits of ammonia six drachms; camphor water six ounces; one ounce to be taken three times a day.]

DERBYSHIRE NECK or GOITRE.—This affection consists in the enlargement of a gland situated in the front of the neck, which sometimes attains a very great size, causing, by pressing on the windpipe and blood-vessels of the part, great inconvenience and distress, in the shape of difficulty of breathing, difficulty of swallowing, headache, and prominence of the eyes. It is frequently associated with idiocy.

It is, perhaps, more common in females than in males; it occurs principally in mountainous or hilly districts, and particularly where lime is contained in the water. It has therefore been thought due to the latter cause, and removal to another locality is a better remedy than any medicinal agent.

[The best local application is biniodide of mercury ointment (Recipe 94), which should be rubbed on the part daily; and iodide of potassium (Recipe 45) should be given internally.]

DIABETES.—This complaint comes on very insidiously, and is characterised by the passing of large quantities of pale, light-coloured urine, having an apple-like odour, and containing a large amount of sugar. There is, however, another form of the disease, called *diabetes insipidus*, when very large quantities of urine are passed, but without sugar. Sugar, when thus voided with urine, may be easily detected by what is known as 'Moore's test.' This consists of boiling in a test tube held over a spirit lamp equal parts of the suspected urine and of *liquor potassæ*. If sugar is present, the fluid becomes of a fine deep purple colour. If sugar is not present, no change results. Diabetic urine attracts flies in large numbers, which in some cases has led to suspicion and detection of the disease. In diabetes the appetite for a long time remains good, and is sometimes voracious, but the skin is always dry, the bowels costive, the gums pale and spongy, there is constant thirst, and the patient wastes away. As this emaciation progresses, the general health suffers, the appetite declines, there is great debility, and the feet may swell. There is also, in women, frequent intense itching, and sometimes eczema (*vide* p. 343), of the private parts. As regards treatment, more is to be effected by appropriate diet than by medicines. When sugar is being passed, the food should be nutritious, but free from material containing sugar or starch. Thus pastry, fruit, confectionary, bread, potatoes, carrots, parsnips, beetroot, turnips, maccaroni, rice, sago, tapioca, arrowroot, beer, coffee, are unsuitable. White-fish, meat, poultry, game, ham, bacon, cheese, milk, eggs, greens, watercress, bran-bread, dry sherry, burgundy, and whisky, may be allowed. A diet composed principally of skimmed milk, with bran biscuits, has been much recommended by good authority. Cod-liver oil, with opium and astringents, may be given if diarrhœa occurs. But the disease, although thus often kept in abeyance, is seldom cured, and the treatment demands professional advice.

DIARRHŒA.—Diarrhœa, or looseness of the bowels, originates from many causes, which may be briefly summarised thus:—

1. Diarrhœa depending on biliousness. 2. Premonitory of dysentery. 3. Premonitory of cholera. 4. Accompanying scurvy. 5. From malarious influences. 6. From imprudence in diet. 7. From atmospheric changes. 8. Hill diarrhœa. 9. Infantile diarrhœa.

The first five forms of diarrhœa are noticed under the heads of 'Liver Disease,' 'Dysentery,' 'Cholera,' 'Scurvy,' and 'Malaria.'

DIARRHŒA FROM IMPRUDENCE IN DIET.—This is caused by indigestible food, as unripe fruits, or ripe fruits in excess, from badly cooked vegetables, and often from shell fish, or inferior 'tinned' provisions, or from inferior beer or wine. Europeans, especially on their first arrival in India, cannot be too cautious in avoiding the too free use of fruits, vegetables, and articles of food to which they have been unaccustomed, as diarrhœa so excited is liable to result in some more serious malady.

It should also be recollected that diarrhœa may arise from a dirty condition, or from defective tinning, of the cooking utensils used in Indian kitchens. This subject is more particularly referred to in the remarks on diet, page 643.

Treatment.—When diarrhœa is caused by indigestible food, the purging is nature's remedy to free the bowels of substances which are irritating them, and no medical treatment is required; but abstinence should be practised. If the diarrhœa is accompanied by colicky pains, a spoonful of castor oil with twenty drops of chlorodyne will be beneficial. If the purging continue, or if the evacuations are sufficiently copious to cause depression, thirty drops of chlorodyne in a half wine-glass of brandy and a little water may be taken, or Recipe 67 may be used. If there be much griping or nausea, and this is not relieved by the medicine, apply a mustard poultice, or a turpentine stupe (Nos. 108, 109), over the bowels. Irritability or sickness of the stomach may be relieved by soda water, or iced water.

DIARRHŒA FROM ATMOSPHERIC CHANGES.—Diarrhœa often results from sudden changes of temperature, as occur for instance at the commencement of an Indian monsoon, or from exposure to damp night air, or from damp clothing, or bedding. Or, as not unfrequently happens, on first rising in the morning, and passing out into the cold morning air.

This variety of diarrhœa generally subsides spontaneously, unless the person be otherwise in bad health, when it may be the prelude to some more serious disorder. No kind of purgative medicine should be given for this form of looseness; a dose of chlorodyne, or Recipe 67, being the better measure. But prevention is still more desirable, and this may be accomplished by caution in not sleeping in draughts, especially at the more changeable seasons of the year, by clothing in flannel, by wearing a flannel belt, and by taking a biscuit and a cup of hot tea or coffee before going out in the morning.

HILL DIARRHŒA.—The presence of a peculiar species of diarrhœa at hill stations, and more especially at the Himalayan hill stations, has been frequently the subject of comment. This peculiar diarrhœa, often called 'white diarrhœa,' is not, however, limited to hill stations, but often occurs on the plains, and is one of the worst forms of bowel complaint. The symptoms are in some degree peculiar, and consist at first of *painless* diarrhœa, occurring chiefly in the early morning. The stools passed are light, sometimes white in colour, and generally copious and frothy. As the disease advances, light stools are also passed in the evening, but the patient, probably continuing to feel tolerably well, takes little notice of the commencement of the malady. The calls to stool, although unattended by pain, are urgent; but the fæces are passed without straining, faintness, or griping, and are succeeded by a feeling of comfort. The most distressing symptoms are fulness and distension of the bowels by *flatus*, eructations having an odour and taste of sulphuretted hydrogen, and other dyspeptic manifestations. But the stools are not offensive. The pulse is feeble, the tongue furred in the centre, but the appetite not much impaired. There is also often slight sallowness. If this condition be not checked, the person falls into a state of confirmed weakness or *cachexia*. The stools become more numerous, progressive emaciation takes place, the mind becomes weak and fretful, and fever occurs. Then, probably, the stools become dysenteric, containing slime and blood, and the patient dies exhausted.

Causes.—Difference of opinion exists as to the precise cause of this so-called *Hill Diarrhœa.* It has been attributed to malarious influences, and to defective sanitation, and doubtless such conditions predispose to the malady. But it would rather appear that the direct exciting cause is sudden vicissitude of temperature, aided by a colder, moister atmosphere than the person has been accustomed to, leading to congestion of the liver and bowels, with resulting diarrhœa. And the fact that *Hill Diarrhœa* is most prevalent about the period of the commencing monsoon, and that new arrivals at hill stations are more subject to it than older residents, would appear to favour the conclusion that sudden changes of temperature are the chief exciting cause. Nothing indeed is more common than persons arriving at hill stations being attacked with more or less severe diarrhœa soon after ascending into the colder atmosphere of the mountain climate, and this especially if the wearing of warmer clothing has been neglected.

Treatment.—Treatment should be early and prompt. Too hot drinks must be interdicted, and the diet restricted to animal broths and farinaceous gruels or puddings, with a little port wine daily. Dover's powder combined with quinine and ipecacuanha (Recipe 38) should be administered every night. But if the ipecacuanha produces sickness, the quinine and Dover's powder may be given *alone.* Chlorodyne, and Recipe 66, may be used alternately; the latter compound being not only agreeable, but often especially beneficial. Mustard poultices should be applied daily, or as often as can be borne, both on the right side over the liver, and also over the bowels. But if diarrhœa and emaciation continue, or if the motions become dysenteric, that is, containing blood, immediate change from the hill climate will alone effect a cure.

[Other prescriptions, which may be compounded by a chemist, for hill iarrhœa, are given under Recipes 63, 68.]

Diarrhœa of any kind occurring in India, if long coninued, requires change of climate, which should be taken efore the patient becomes greatly debilitated. A severe hronic diarrhœa requires at least two years in England, even f the person is apparently well soon after arrival, as the lisease is very liable to return on re-entering the tropics.

DIARRHŒA, INFANTILE.—An infant's bowels should e relieved three or four times daily, and the motions should e of the colour of mustard, and free from fœtor or acid mell. The diarrhœa of children is most commonly caused y teething; by irritating matter in the bowels, such as ndigested food; or by worms; or it may come on during ooping-cough. It is often accompanied by vomiting, and s always attended with more or less flatulency, and frequently by griping, which is evidenced by the straining cry f the child, and by its legs being spasmodically raised up owards the bowels, when the pain occurs. When the stools re a natural yellow, the diarrhœa may be regarded as of ittle importance; when they are yellow, but becoming reen after exposure, there is still little cause for anxiety; hen they are green, or greenish yellow, with sour smell, nd containing specks, flakes, or larger masses, of white curdy aterial, which may be undigested milk, or mucus from the owels, there is much intestinal irritation and disorder resent: when they are white an inactive liver is denoted; hen there is slime, and streaks of blood, the malady has assed into dysentery (*vide* p. 161).

Treatment.—As a rule, diarrhœa in children should not e too suddenly checked, particularly if the child is teething, hen it is frequently a salutary effort of nature to relieve the rritation of the system thus excited. If the purging is oderate, the colour of the stools natural, and the motions t all consistent or formed, it will most usually subside without any medicine. The best and safest treatment is to give at the onset half a tea-spoonful of castor oil, or if the child is a year old, a tea-spoonful. This will relieve the bowels of any irritating matter lodged there. If the purging continues, chlorodyne may be given in doses corresponding with the age of the child (*vide* p. 11). If the child is feverish at one time of the day, and cool at another, the quinine and Dover's powder (Recipe 40) may be used. If the breath or stools smell sour, lime water (Recipe 41) should be used. If the child passes large offensive curdy looking stools, the milk should be stopped and Liebig's raw meat soup (Recipe 28) or, if not obtainable, weak chicken broth, should be given for two or three days. Both in the diarrhœa and dysentery of children, especially if being brought up by hand, or who are partially fed by hand, such a change of food is often attended with much benefit, whenever the motions show that milk is not being digested. When the milk is resumed, that given by hand should be well diluted, and a dessert-spoonful of lime water should be added to each meal. If there are *white* stools, the purging will not cease until the liver acts, and podophyllin dissolved in brandy, as detailed at p. 117, may be given. If the stools become slimy and bloody, the child must be treated for dysentery (*vide* p. 161). In all cases a flannel bandage round the bowels is advisable.

While thus giving remedies for the diarrhœa, the condition of the gums should be frequently investigated. If the gums are full, red, and swollen at the *commencement* of the attack of diarrhœa, they should be lanced (*vide* p. 397), after which, probably, the succession of remedies noted above will not be required. If in spite of medicines the purging continues, and the gums become red and prominent *during* the persistence of the diarrhœa, they should be lanced at the most prominent or swollen part. If the child is discovered to have worms, it should be treated with santonin (*vide* p. 423).

In the case of young infants diarrhœa is often caused by improper feeding, or by overfeeding, or by some deleterious property of the milk. Infants should not be nursed oftener than every two hours, and as the age advances the periods should be lengthened. If fresh milk is taken into the stomach while some of the last meal still remains, the result is generally either purging or vomiting. When the milk of the nurse is at fault, it will probably be due to improper diet of the woman, and this may require not only alteration in the food, but also the action of a purgative dose. If the milk is scanty or otherwise deteriorated, the nurse should be changed. (*Vide the Feeding of Infants*, chap. VI.).

Lastly, it should be recollected that the rapid exhaustion of the vital powers of a child, caused by continued infantile diarrhœa, is a condition very favourable to the supervention of *water on the brain* (*vide* p. 77), or of symptoms tending to that condition called *spurious hydrocephalus* (*vide* p. 81), or of convulsions (*vide* p. 121), or of atrophy (*vide* p. 61). A child with bad diarrhœa should therefore be closely watched, so that the first signs of such maladies may be recognised and treated.

[In violent cases, when the above remedies and care in diet do not prove efficacious, and if there is acidity of the child's stomach, to be recognised by sour-smelling breath, Recipe 64 should be procured and given night and morning, with Recipe 42 three times a day. If there is no acidity of the stomach apparent, the sulphuric acid and laudanum medicine (Recipe 61) will be the better remedy. The dose for a child six months old is half a tea-spoonful, at a year old, one tea-spoonful. A tea-spoonful of this Recipe contains nearly one drop of laudanum (or tincture of opium); and it may be here observed, that one small drop of laudanum for each year of a child's age is the ordinary dose when this medicine is used. But any preparation containing opium must always be given with great caution to children, on account of their well-known susceptibility to the action of this drug. The particular dose recommended above should not be repeated oftener than every four hours.]

DIPHTHERIA.—This dangerous complaint is sometimes called *leather throat*, from the appearances which this part presents; it has also been termed *drain throat*, fro malady being found to be so frequently associated with d tive drainage and sewage. Diphtheria often prevails i epidemic manner—that is, it affects several persons in same house or neighbourhood at the same time; and it spreads by infection, or by the communication of the dis from one to another, in the manners afterwards indica But single cases of diphtheria frequently occur when, so as can be ascertained, the person affected has not been posed to infection. But, as the malady is not only com nicable by direct contact, but also through the atmosphe can never be said with certainty that infection could not taken place.

Diphtheria is allied to croup in its nature, consisting the latter malady (*vide* p. 127), in the formation of a m branous substance in and over the parts about the th which are at first seen reddened and swollen, and after covered with a white exudation, often extending to tongue, palate, gums, to the inside of the cheeks, and t air-passages. The exact nature of this deposit is no determined, although vegetable organisms have been tected in it by microscopic examination. However thi be, the *contagious principle* is believed to be asso only, or chiefly, with the peculiar deposit which forms o throat and other parts; which, coming into accidental tact with a healthy mouth, may take root and spread. is also every reason to believe that the contagious pri is also given off in the breath of persons suffering from theria; and it is likewise probably contained in the excretions, as from the nose, or from the bowels. Th disease may spread to any inmates of an infected house there is always much more danger in the case of thos are brought into close contact with a patient with diph who may inhale the breath of the patient, or who are li have the morbid products coughed out upon them. rience has also shown that the germs of the diseas sometimes cling with remarkable tenacity to a house or apartment in which a patient has suffered, even although every care has been taken to purify and cleanse. Numerous instances have occurred of persons suffering from diphtheria after occupying a room in which a patient had been ill many weeks, and, in some cases, months, previously. It appears, from experience, that after exposure to infection the malady may come on in three days, or be deferred as long as three weeks; and it further seems that a person may communicate the disease six weeks after convalescence.

The causes predisposing to diphtheria are the period of childhood, bodily fatigue and exhaustion, and probably nervous excitability. But the poison itself is believed to be intimately connected with, if not to arise from, foul drains and sewage. Hence, in Europe especially, diphtheria is met with in houses having the accommodation of fixed wash-basins, and water-closets, in immediate connection with nurseries and bedrooms. Such bad sanitary conditions, if not giving rise to diphtheria, often occasion sore throat; the cause of which is erroneously supposed to be cold, and the measures generally adopted against such presumed cause, by impeding ventilation, and allowing a minimum of fresh air, tend to increase the evil. When diphtheria gets introduced into a house, if the children are living in good sanitary conditions it falls light; but if the reverse is the case, and especially if the drinking water happens to be contaminated from sewage or drains, the disease spreads with appalling rapidity and mortality.

Symptoms.—There are two principal varieties of diphtheria; one, in which the disease commences as a common sore throat; a second, in which, without any previous sore throat, the person is suddenly attacked with shiverings and hoarseness, quickly followed by feelings of suffocation and croupy symptoms. Ordinarily, the first symptoms are, great depression, chilliness, nausea, and occasionally diarrhœa. Then, the throat begins to feel stiff, or tender, with some difficulty of swallowing; but not so much pain as when the affection extends to the nose and air-passages. At first, accompanying the sore throat there is merely redness of the parts; but in a variable time—from a few hours to two or three days—the characteristic exudation makes its appearance, accompanied by badly-smelling breath. This may commence at any spot where the redness has appeared, and generally does so on the tonsils, or on the back of the throat. At first, only small whitish specks may be observed, which speedily extend and meet, so as to form large patches, or even to cover the entire surface. The thickness and colour of this deposit vary considerably in different cases. It is sometimes as soft as cream, at others almost as hard as wash-leather. The colour is usually white, grey, or slightly yellow, but sometimes assuming a brownish tinge. If removed, a raw bleeding surface is left, which quickly becomes again covered with deposit. The exudation may spread over the mouth to the lips; it may penetrate the nose; or it may pass into the windpipe, and air-passages. It has also been seen on the whites of the eyes, and even in the female private parts, and in the lower gut (rectum). The glands about the neck, and especially near the ear, become swollen and tender, adding much to the distress of the patient. When the disease has fully formed, there is always husky cough, great difficulty in swallowing, and fever. If the disease extends into the windpipe, known by croupy cough, increased difficulty of breathing, and threatening suffocation, the danger is great. Under such circumstances the only thing which can save, or even relieve the patient, is the spontaneous separation of some of the false membrane which impedes the respiration. This sometimes takes place, and one or more hollow tubular pieces of membrane, several inches long, sometimes branched, may be coughed up. This is always a favourable sign, although if the disease is very severe, or the patient much weakened, recovery may not occur after it. Growing obstruction of breathing, and lividity of face and lips, point to a fatal termination. Hæmorrhage or bleeding from the mouth, throat, or air-passages, sometimes occurs, and this is a very unfavourable sign; as also are, the occasional appearance of erysipelas, or of erythema (*vide* pp. 177, 333); or of dark coloured spots on any part of the body. During the progress of a case of diphtheria, the urine should be examined, at least once daily, for *albumen* (*vide* p. 87). If no albumen is found, it is a favourable sign; and the reverse.

The above is the description of an ordinarily severe and dangerous case of diphtheria. But sometimes the disease is much milder, and all the signs and symptoms are of less severity. The malady may decline, and the exudation separate, without extending to the mouth or air-passages. This separation may commence after two or three days, or the disease may be prolonged for a fortnight; but whenever the false membrane is spit or coughed out, the breath, previously smelling badly, often becomes horridly fœtid. *Thirdly*, diphtheria may be characterised from the very commencement by great depression and debility. In such cases the face and skin generally assume a dirty yellowish tint, and the surface feels hot, although the temperature (as tested by the thermometer, *vide* p. 34) may not be very high. The pulse is frequent, small, weak, and irregular, and the heart's action is feeble. The tongue soon becomes dry and brown, and 'blacks' (*sordes*) form on the teeth; the general condition resembling the latter stages of *typhoid* fever (*vide* p. 195). Or, *fourthly*, as previously mentioned, the disease may set in suddenly, the air-passages being first affected, with little or no sore throat, the attack then very much resembling croup (*vide* p. 127).

Although diphtheria and croup are undoubtedly allied diseases, there are points of difference, which it is as well should be known. A usual distinction between diphtheria and croup is the formation of the membrane of diphtheria over the tonsils and in front of the windpipe, while in croup the membrane forms inside the windpipe. That they are not the same diseases is further proved by anatomical examination; the morbid deposit of diphtheria being secreted in the substance of the mucous membrane of the part affected, while the deposit of croup is on the surface. Further, diphtheria, as above noted, is contagious, and is therefore the local manifestation of a special blood disease, while croup is not contagious, being the local results of cold. Again, diphtheria most often occurs to adults, croup to children. Croup is most frequent during cold moist weather, especially during the prevalence of easterly or north-easterly winds. Diphtheria, on the other hand, prevails at all seasons and during all kinds of weather—sometimes as an epidemic, and then often coincident with scarlet fever; but always more or less connected with, or influenced by, the effects of sewage emanations or imperfect drainage. Diphtheria, moreover, is undoubtedly infectious, by direct contact of the expectoration of the sick with a healthy mucous surface, or by emanations from an affected person, as is evidenced by the manner in which it often spreads in a family. On the other hand, a child affected with croup lying in a confined room (as so often seen among the poorer classes) does not give it to other children, even although in the same apartment; while under such circumstances diphtheria spreads. In one feature doubtless there is similarity, the presence near or in the air-passages of the material formed in both diseases, giving rise to very similar symptoms, as regards the sound of voice, breathing, and suffocating paroxysms.

Treatment.—The patient should be put in a well-ventilated room free from draughts, and the temperature should be maintained equable, and the air moist, as mentioned under *Bronchitis* and *Croup* (pp. 88, 131). Complete quiet and rest should be observed, and as there is often great prostration, the patient's strength must be stored from the first.

Unfortunately there is no drug which can be looked upon as a specific, nor any means by which the disease can be cast off, when it has once attacked an individual. But much may be done, even in severe cases, if the disease is recognised sufficiently early. In the mildest form of diphtheria it is enough to protect the patient from cold, to open the bowels (Recipe 1, 2); to administer some saline, as citrate of magnesia (*vide* p. 14); to allow a good quantity of beef-tea and milk; and to employ soothing local remedies in the form of fomentations, dry or wet, (*vide* p. 591), to the throat, as may afford most relief; with the very frequent use of alum gargle (Recipe 100). But if the disease is at all severe the patient should also inhale the steam from hot water and vinegar three or four times daily, and strong alum solution (alum three drachms, water one ounce) should be applied to the inside of the throat, every six hours, with a camel-hair brush or a piece of stick to which a bit of lint has been firmly attached. The solution should be thoroughly applied with a 'dabbing' motion to all the diseased portion of the throat which can be seen, but not so forcibly as to rub off the deposit, or cause bleeding. Or four or five grains of powdered alum may be blown into the throat from a quill or glass tube, a method of application sometimes least irksome to the sick person. The patient may also be daily enveloped in a vapour bath: this may be done by constructing a kind of tent of blankets over the bed, while, by the aid of a spirit-lamp, a kettle may be kept at the boiling point, the steam being permitted to pass beneath the blanket canopy. As medicine, quinine (Recipe 17) may be given every four hours. In severe cases, although beef-tea, chicken broth, milk and eggs may be used, almost *ad libitum*, no solid food should be allowed, and the patient must be fed slowly, as the act of swallowing is always difficult and sometimes dangerous. In any case, if agreeable to the patient, pieces of ice may be given to suck.

In the later stages of the complaint, or in those cases mentioned as showing great debility from the first, wine or brandy beaten up with eggs may be freely given, to the extent of a bottle of the first, or eight ounces of the latter, in the twenty-four hours. Good port wine, and iced champagne are also very valuable. If a patient cannot, or will not swallow, food, as beef tea, mixed with a little brandy, should be administered as injections; or, if practicable, *digestive enemas* (*vide* p. 597) should be used.

[If obtainable, instead of the strong alum solution mentioned above as an application to the inside of the throat, use a strong solution of nitrate of silver. Strength, ten grains of nitrate of silver to one drachm of distilled water. Also give fifteen drops of the tincture of the sesqui-chloride of iron with each dose of quinine.]

Diphtheria is a disease urgently requiring skilled professional watching; and particularly so when the air-passages become affected. The question of the propriety of an operation—opening the windpipe, or larynx—then presents. As such an operation almost always affords temporary relief and prolongation of life, and as cases do sometimes recover after operation, from an apparently almost hopeless state, it is generally considered advisable by medical men to afford the patient the chance. There are, however, conditions, such as extreme debility, or extensive implication of the lower parts of the air-passages, when an operation would not be productive of benefit.

As soon as the patient can be moved with safety, change of air from the infected locality is most beneficial. Convalescence is often slow, and may be retarded by the presence of *albuminuria* (*vide* p. 86), or by chest complaints, as *inflammation of the lungs* (*vide* p. 283), or by nervous affections, of which paralysis of different parts of the body are the chief. To guard against such sequelæ, avoidance of chill, generous diet, and living under good sanitary conditions, must be enforced.

All through the disease the greatest care must be taken to prevent infection, and the rules given at page 605 *regarding the disinfection of the apartment, of the utensils, of the clothing, of the discharges, and of the hands of attendants, should be scrupulously carried out.* A great danger in diphtheria is inhaling the breath of the infected person, and particularly so with children; therefore communication with other people should be avoided as far as possible throughout the whole illness. Attendants should studiously avoid the contact of the expectoration of the patient with their own lips or mouth, as may accidentally occur. Rags, which may be immediately burnt, should be used instead of pocket-handkerchiefs or towels. If it is found that the house is contaminated by defective sewage or draining, the patient should, if possible, be removed.

DROPSY.—Dropsy is generally not a disease *per se*, but is a frequent consequence and symptom of other diseases. Dropsy consists of swelling of the parts affected, caused by the escape of the watery portion of the blood through the coats of the veins into the surrounding tissues. This is produced by some impediment to the circulation of the blood causing stagnation of that fluid; as for example swelling, or in reality dropsy of the leg, may be caused by a tight ligature, as a garter, if allowed to remain sufficiently long. The most usual positions of dropsy are the lower extremities, and the abdomen or belly. The malady is recognised when external by the parts affected 'pitting' on pressure: that is, if pressed upon by the fingers, depressions are left which gradually fill up.

Dropsy is generally connected with, and traceable to, one or other of the following conditions:—1. Exposure to cold. 2. Disease of the kidneys. 3. Disease of the heart. 4. Disease of the liver. 5. Disease of the spleen. 6. Disorders of the *menses*, or 'monthly flow' of females.

DROPSY FROM EXPOSURE TO COLD generally occurs suddenly, after exposure to cold and damp, or from sitting in a draught of cold air while the body is freely perspiring from severe exercise. The action of the skin is suddenly checked, and watery fluid becomes lodged in the loose tissues beneath, forming the condition known as *Anasarca.* Usually also the *kidneys* are implicated, and the attack may be the prelude to *Bright's disease.* *Anasarca* may also occur after scarlet fever, during which malady the action of the skin is also impeded. Should sudden general dropsy from cold or from checked perspiration present, the patient should be kept warm and should take sulphate of soda (Recipe [illegible]) to act on the bowels and produce watery stools; Dover's powder in five-grain doses three times in the twenty-four hours to act on the skin, and half-drachm doses of sweet spirits of nitre to increase the flow of urine. Warm vapour baths as recommended under *Diphtheria* (p. 151), otherwise warm baths, will also be generally advisable. Dropsy following scarlet fever should be treated as recommended above, excepting that nitre should not be given.

Dropsy from Disease of the Heart commences in the legs and arms, often at the same time, and gradually involves the whole body.

Dropsy from Liver or Spleen Disease affects first the abdominal cavity, causing dropsy of the belly, which swells and may be felt to contain fluid, a condition called *ascites.*

Dropsy is therefore due in the great majority of instances to some organic internal disease, meaning thereby some disease involving change of structure in the parts implicated, and which sooner or later will prove fatal. Death generally occurs from feebleness of the heart, which at length ceases to act. But a fatal result may be caused by an extension of the dropsy to the lungs causing suffocation, or to the brain causing convulsions. The treatment of dropsy must therefore be sought for in the *paras.* on those diseases of which it is a prominent symptom.

Dropsy from, or accompanying, Disorders of the Menses.—This is not indicative of dangerous disease as are the other varieties, and is generally confined to the lower extremities, but may appear also in the hands and face, which become more swollen towards evening. This kind of dropsy is connected with suppressed or insufficient monthly discharges, and the treatment mentioned under the head *Amenorrhœa* or *Dysmenorrhœa* should be employed (*vide* pp. 409, 413).

DROPSY, OVARIAN.—Ovarian dropsy is a different kind of disease from either of the foregoing. It only occurs in the female sex, and consists in the gradual growth and distension of one or more of the parts called the 'ovaries,' by watery or albuminous fluid. The 'ovaries' being situated on each side, rather above the female groins, the disease presents as a tumour or swelling on one or other side in that position. But if both ovaries are affected, the tumour appears central; or, in the latter stages of the malady, one tumour extends over the whole of the bowels. The strength and general health of the patient remain long unimpaired, sometimes for years, until the bulk and pressure of the swelling on neighbouring parts bring on difficulty of breathing, and swelling or dropsy of the lower extremities. In some cases there are periodical attacks of pain and tenderness in the tumour, and also cessation of the monthly discharges, but neither of these symptoms is constantly met with. For this malady no medicinal treatment is of any service. Wearing a well-fitting, elastic abdominal belt often affords much relief and support, but the only chance of cure is submitting to a surgical operation.

DRUNKEN FITS.—When a person is in a drunken fit, or, as it is called, 'dead-drunk,' there may be doubt as to the cause of the insensibility. Persons suffering from apoplexy have been frequently locked up as drunk, and the distinguishing features are given at p. 54. If a person is insensible from drink the following rules should be followed:—

Place the patient on his *side* with head slightly raised. Do not allow him to lie on his back or on his face. Remove all constrictions from about the neck and the upper part of the chest. Induce vomiting by tickling the throat with a feather. If able to swallow give lukewarm water to drink. A mustard poultice may also be applied to the chest, and as soon as the patient begins to recover some strong coffee may be given. Unless taken in poisonous doses, the person will in the course of a few hours sleep off the effects of the alcohol. But if taken in poisonous quantities, the condition nearly approaches to apoplexy, and the stomach-pump may be required.

DYSENTERY.—This disease is more prevalent in India and other tropical climates than elsewhere. A long-continued high temperature undoubtedly predisposes to the disease, which is often excited at the changing period from the hot weather into the damper season of the monsoon. The principal causes of dysentery may be said to be a tropical climate; exposure to sudden changes of temperature; also imprudent change of clothing, particularly of that worn over the bowels; drinking water containing mineral or vegetable impurities; irregularities in diet; famine and want; lying on the damp ground; residence in ill-ventilated, imperfectly-drained, and badly-located habitations; and a scorbutic condition of system, from the want of fresh vegetables. Many also believe that exposure to malaria will excite dysentery. Lastly, dysentery has frequently appeared to rise from contagion, becoming epidemic in crowded, unventilated gaols, in crowded barracks or ships, or in armies badly fed, lodged, and clothed; especially when the moral depression from defeat in battle, or from other causes, is superadded.

The European as compared with the Native is peculiarly liable to dysentery. Among soldiers eleven Europeans are admitted to hospital for this malady for every single Sepoy. Up to thirty years of age there is a larger proportion of dysentery among Europeans; after that age the number so suffering is lessened; but of those attacked a greater *percentage* die.

The first symptoms of dysentery are feelings of griping about the navel, often accompanied by nausea. Very frequently this is first felt after incautious exposure to night air, particularly during sleep, and more especially if the wind has been suffered to play on the bowels, even often if well covered. Next there are irregular loose discharges from the bowels, which may continue one, two, or three days, forming the *premonitory diarrhœa* of dysentery. To this succeed irregular griping pains, gradually becoming cutting and shooting, with great heat about the fundament and frequent straining and purging. Matters now voided consist of liquid fæces streaked or mixed with white mucus and blood. As the disease becomes more severe, shreds or large flakes resembling the washings of raw meat often pass away, and the stools have a peculiarly offensive odour. The desire to stool is generally most urgent during the night; in some instances it is incessant; in others there may be ten or twenty calls in the twenty-four hours. The amount of attending fever is very variable, in some instances hardly exciting attention, in others evidenced by a flushed face, dry skin, hard quick pulse, and furred tongue. Pressure over the bowels is painful, although the parts are not so tender as when inflammation of the bowels is present. Absence of pain or tenderness of the bowels, and slimy bloody stools unmixed with fæcal matter, indicate that the lowest part of the intestines (the rectum) is chiefly implicated. A cadaverous smell, anxiety of countenance, feeble pulse, hiccup, and involuntary motions pronounce the case hopeless.

It should always be recollected that in every case of dysentery there is danger of the liver becoming affected, and of liver abscess forming as a secondary consequence of the dysentery. This possibility therefore renders every case of the kind more serious, and shows the necessity of prompt, careful, and efficacious remedial measures.

Treatment.—In the mildest form of the affection, when griping pains are complained of at intervals, followed or accompanied by the discharge of slightly bloody or slimy stools, fomentations, or the turpentine stupe (Recipes 81 and 108), rest in the horizontal posture, and five grains of Dover's powder three times a day, will frequently effect a cure. The diet in such cases should be of the plainest description, consisting of broths and farinaceous gruels, without any solid material.

In the more acute forms of dysentery, when the calls to stool are frequent, the pain cutting, the abdomen tender, the patient feverish, and the constitution good, the application of leeches to the bowels may be called for. In such cases one ordinary-sized Indian leech (which is smaller than the English leech), up to thirty-five in number, may be applied for each year of the patient's age. If leeches are used, they should be made to bite over the most tender or painful part of the belly, which will be generally towards the sides. If the pain, tenderness, and fever do not seem to demand the use of leeches, give immediately (or otherwise after the leeches have come off) forty drops of chlorodyne in a table-spoonful of water; fifteen or twenty minutes afterwards give thirty grains of powdered ipecacuanha in a wine-glassful of water, and then apply a mustard poultice over the pit of the stomach (not the bowels) for twenty minutes. The patient should lie down and remain perfectly quiet, and refrain from drinking, but if thirsty he may suck ice. This treatment will probably cause great nausea and depression; but the after result is usually free action of the skin, subsidence of griping, and re-appearance of natural stools. If vomiting does not soon occur, or if it does not occur in a very violent manner, and if the patient is not faint, the same medicines should be again given in about five hours afterwards, and repeated at such intervals during three days, care being taken to allow of a sufficient time between the doses to admit of the patient taking and digesting some fluid nourishment. The treatment of dysentery with large doses of ipecacuanha is now admitted to be the most successful method of combating the disease. But the vomiting and depression produced by the ipecacuanha are sometimes so great that the treatment cannot be continued. In such cases, or when, as sometimes happens, ipecacuanha administered as above fails to prove beneficial, it will be advisable to give smaller doses of ipecacuanha with quinine and Dover's powder (Recipe 39), every four hours; the quinine being especially required if the patient has been in a malarious district, or if there is accompanying fever of the intermittent or remittent form (*vide* pp. 202, 211). It will also be desirable to use soap and water injections twice daily (Recipe 104), in which thirty grains of ipecacuanha powder should be placed.

In all cases of dysentery the recumbent posture should be insisted upon, and the patient should be instructed to give way as little as possible to the frequent inclinations to stool. In any case it will always be right to apply warm applications to the bowels, as fomentations, hot bran, linseed meal, or rice-flour poultices. The patient should be kept in a well-ventilated apartment. When stools are passed they should be removed immediately, and some disinfecting agent should be placed in the pan (*vide Disinfectants*, p. 607), and also used in the room (*vide* p. 605). The food should invariably be of the simplest kind, as good broth, sago, corn-flour, arrow-root, milk and jellies. If the accompanying fever is slight, a small quantity of port wine and water may be allowed. The drinks should never be given iced, or even quite cold.

During recovery the appetite often increases before the digestive organs recover their tone; therefore caution must be used, so that not more than a very moderate quantity of food is taken or a severe relapse may be the consequence.

[If the measures recommended above are not successful, pills composed of ipecacuanha, blue pill, and opium (Recipe 44) should be procured from the chemist, one of which should be given every three hours. The pills should be continued until a metallic taste or slight soreness of the gums is experienced, when they should be stopped, and Dover's powder, quinine, and ipecacuanha (Recipe 39), given instead. The unnecessary use of blue pill should, however, be carefully avoided. It is only advised on the failure of other measures as above noted. Laudanum should also be procured, thirty drops of which should be added to each warm-water injection, recommended in the large type. A good medicinal tonic during convalescence will be found in the nitric acid and orange-peel mixture, Recipe 24.]

DYSENTERY, CHRONIC.—Chronic dysentery may commence as such; that is, a minor degree of dysentery than that described above may occur, and, without assuming any violent form, destroy the health of the patient. But chronic dysentery more frequently results as a sequel of the acute form. It very often happens after a severe attack of dysentery, that soreness remains in some parts of the bowels, while the stools are occasionally slimy and bloody, alternating with constipation for a day or so; and there is considerable and increasing debility, with perhaps a tender scorbutic condition of the gums. Under such circumstances, the repeated application of mustard poultices or mustard leaves over the tender part is advisable. The bowels should be regulated by small doses of castor oil, constipation being strictly guarded against. When the bowels are *not* constipated, astringent medicines of various descriptions should be employed. In the absence of the remedies mentioned in the small type below, Recipe 38 may be taken at night, and Recipe 58 three times a day. If the ipecacuanha in Recipe 38 causes too much nausea or sickness, it may be omitted. If there is *alternate* looseness and constipation, it will be better to trust to diet and castor oil, and not to take astringents; but in any case, both the decoction and syrup of the Indian bael fruit (*vide* p. 23) may always be tried, as the bael possesses both astringent and slightly aperient properties. Or, the bael not proving efficacious, decoction of pomegranate may be used, made with either milk or water (*vide* p. 27). During chronic dysentery it is also necessary to examine the gums frequently, and if they are found tender, spongy, swollen, or inclined to bleed, thus showing evidence of a scorbutic taint in the system, lime juice should be given daily (*vide Scurvy*, p. 327). This should not be neglected, scurvy with dysentery being a serious complication.

In all cases of chronic dysentery the diet should consist chiefly of soup, broth, rice, sago, arrowroot, or flour and milk well boiled together, seasoned with sugar and spice. Generally a little port wine may also be allowed. A flannel belt should be worn round the bowels, and the feet kept warm by woollen socks.

Many cases of dysentery are, however, little benefited by medicines, and resist all treatment. In such cases a thorough change of climate, or at the least a sea voyage, affords the only chance of recovery. If a patient with chronic dysentery is living in an extraordinarily malarious country, then probably no treatment will prove of benefit until he is removed from the influence of such an atmosphere, after which he may begin to improve.

[Other astringent prescriptions for chronic dysentery are Recipes 62 and 63; the first most useful if scorbutic taint exists.]

DYSENTERY IN CHILDREN may occur suddenly, without any previous warning, or it may be a sequel of diarrhœa (*vide* p. 143).

It often happens that an infant has been suffering from diarrhœa for several days, passing green motions, or motions like frog spawn, when a sudden change occurs. The griping increases, there is great straining, and mucus and blood are found in the stools. The diarrhœa has passed into dysentery, and the character of the case is more grave and serious. However commencing, dysentery in children is frequently obstinate and intractable, and is marked by the same symptoms, as the passing of mucus, slime and blood, and by the pain and straining characterising the affection in adults. From the commencement, some degree of fever generally prevails. If constipation has preceded the attack, it will be best to commence the treatment with a small dose of castor oil; but if the child has not been previously costive, no laxative medicine should be given. If the child is not more than six months old, a quarter of a grain of ipecacuanha powder should be given every three or four hours. If the child is more than six months old, one grain of ipecacuanha may be given; if more than one year old, two grains. If the symptoms persist after two days, Dover's powder should also be given night and morning in the proportion of one grain for a child above six months old, and one grain and a half for a child above one year old. Warm linseed-meal or bran poultices, or, if available, spongio-piline warmed with hot water, or the india-rubber hot water bag (*vide* p. 591), should be frequently applied to the bowels; and if the child has much straining, starch injection may be used (Recipe 104). If the teeth are causing irritation, the gums must be lanced; and if worms are present, santonin (*vide* p. 423) may be given, but without any purgative. If the infant is suckling, change of the nurse may perhaps be advisable; or this not being practicable, or if the infant is being fed by hand, raw meat soup, or weak chicken broth, may be substituted, as recommended for *diarrhœa* (*vide* p. 144). For older children the food should consist of sago, arrowroot, bread and milk, chicken or mutton broth, and tea. The bael fruit is sometimes beneficial in obstinate cases. The dose of the decoction of bael made as detailed at page 23 is a tea-spoonful for a child one year old; of the syrup of bael made as there mentioned, a little less. When the stools become more natural, two, three, or four minim doses of chlorodyne, according to the age of the child (*vide* p. 11), may be substituted for other medicines to moderate any remaining looseness.

When this ceases, one or two-grain doses of quinine will be desirable for some days. Great care should be taken for some time to examine the stools of the child, in order to discover if undigested morsels of food pass; and if so, the diet should be altered.

[The above means not proving successful, Recipes 64 and 65 should be obtained and tried in succession.]

DYSPEPSIA or INDIGESTION.—Dyspepsia, in one or other of its numerous forms, is very common in India, sometimes occurring as simple dyspepsia, unconnected with any other malady; at other times as the result of disease of the liver, the kidneys, or the bowels. Unless secondarily resulting from such maladies, dyspepsia is generally caused by errors in diet, especially by over-feeding and over-drinking, or by excessive smoking, by neglect of exercise, by sedentary occupations, by constipation, by irregular meals, or by bad teeth rendering the person unable to masticate his food thoroughly. Taking too cold drinks or too much hot weak liquid, as tea, coffee, or *congee*, is also liable to induce dyspepsia. In India, moreover, prolonged residence tends to induce that debility of the nervous system of which dyspepsia is a very prominent characteristic.

Dyspepsia, or indigestion, as the terms imply, is a loss of power in the stomach to fulfil its office, arising in most instances from irritation of the inner coat of the stomach, or even from chronic inflammation of that part. Its secretion, called the gastric juice, is deficient in quantity or altered in quality. Abnormal acids are thus generated, and the nerves of the stomach become sensitive and the seat of uneasiness or pain. There is also a loss of nervous or vital power in the stomach, as well as the derangement of the chemical process through which food must pass to form healthy blood. Hence various theories advanced in explanation of dyspepsia may all express correct, though partial views of the subject.

The symptoms of dyspepsia are as follows:—Pain, in some varieties of the affection felt when the stomach is empty, in others when it is full. It is usually gnawing pain, but is sometimes sharp and cutting. It varies much in degree, sometimes being simply an uneasy feeling; occasionally amounting to agony, and producing faintness. The explanation of the pain is this: the stomach, weakened and irritable, cannot change the food put into it, which therefore acts as a foreign body. It acts, indeed, much in the same manner as any substance on the eye, the internal coat of the stomach being, in diseased conditions, as sensitive as the eye itself. In slighter cases of dyspepsia the pain may be felt in the chest, not in the stomach, or the feeling experienced may not be actual pain, but a sense of fulness and oppression about the chest. Want of appetite, or irregularity of appetite, is always more or less present. In health the desire for food is correspondent with the wants of the system; but when the stomach is weak, the appetite becomes capricious and variable, and is, therefore, not a safe guide as to the quantity and quality of the food to be taken. Heartburn, flatulence, sour eructations, water-brash (as described below), nausea and vomiting, headache, furred tongue, and diarrhœa alternating with constipation, are also more or less present. If dyspepsia continues long unrelieved, the nervous system becomes implicated, and the person, having sleepless nights, becomes tired, despondent, gloomy, depressed, and may also suffer from palpitation of the heart and irregularity of the pulse. Very often, also, the patient is strongly impressed with the erroneous idea of the existence of some severe organic disease, especially of the liver or of the heart.

The symptom of dyspepsia mentioned above, called *Water-brash*, or *Pyrosis*, is sufficiently peculiar to require special notice, as, although generally occurring in combination with other signs of indigestion, a patient is sometimes troubled with *water-brash* only. The affection is characterised by a burning sensation at the pit of the stomach, and a sense of constriction, as if the stomach were drawn towards the back, followed by the eructation of a considerable quantity of thin watery fluid, which is frequently tasteless, but sometimes intensely sour, and often described by the patient as being cold. It occurs in paroxysms, which usually come on in the morning or forenoon, when the stomach is empty. After the discharge of the fluid the pain lessens and gradually disappears. *Water-brash* seems to be due in a great measure to indigestible food, and to the too free use of spirits.

Treatment.—The treatment of most forms of dyspepsia is more dietetic than medicinal. The quantity of food which can be dissolved by the secretions of the stomach (gastric juices) and intestines being limited, this quantity cannot be exceeded with impunity, and moderation must therefore be enjoined. Persons affected with indigestion should change their food and adopt a system of diet. Moreover, the meals should not succeed each other too rapidly. The stomach should have time to perform one task before another is imposed on it. Six hours may be mentioned as an appropriate time which should intervene between any two meals taken by a dyspeptic person.

With regard to the nature of the food best suited for dyspeptics, it may be safely asserted, that a mixture of well-cooked animal and vegetable food is in general more easily digested than a large proportion of either kind, or than one or the other taken exclusively. Mutton, fowls, and game are the most digestible kinds of animal food; pork and all cured meats, such as salted beef, ham, tongue, should be avoided. It is a vulgar error that 'underdone' meat is easiest of digestion. It contains, perhaps, more nourishment, but requires a healthy stomach to digest it. Raw vegetables, especially cucumbers, should be prohibited. Often it is also desirable to avoid potatoes, puddings, pastry, sweetmeats, fruit, sugar, or even bread if not toasted. It is well known how readily sugar, and food containing sugar, run into fermentation, and they are, in the same degree, difficult to digest. In most cases, dyspeptic persons would do well to avoid all stimulating drinks, although in some instances a little cold weak brandy and water, or a glass of sound sherry, or a little ale, may be taken with advantage. Large draughts of tea or similar fluids are not advisable for dyspeptics; although in certain instances of what is called 'a fit of indigestion,' when some article taken will not pass through the stomach, and induces nausea and sickness, a draught of water or tea may often relieve the uneasiness. Draughts of very cold, or iced water, as so frequently indulged in, in India are prolific causes of dyspeptic derangements, and so is the immoderate use of tobacco. But on all points of eating and drinking, a sensible patient will be mainly influenced by his own experience. In most varieties of dyspepsia 'drugging' should be avoided. Care, caution, and self-denial are better for dyspeptics than medicines; and each person should be aware, better than the physician can advise, what particular articles of diet will agree, or will not agree, with him.

[With such care in diet, prominent symptoms may be best relieved as below. Pain, nausea and vomiting may be relieved by chloroform, camphor, ether, or ammonia (Recipe 66 or 68). Ten or twelve drops of spirits of camphor in an effervescing draught is often an effectual remedy. In intense vomiting from dyspepsia, the amount of food taken should be reduced to the lowest possible limit. A table-spoonful of milk mixed with lime water will often remain on the stomach after other things have been rejected. When heartburn is the prominent symptom, ten grains of bicarbonate of soda, or ten grains of prepared chalk, in a table-spoonful of water, will afford relief. There is no better remedy for flatulence than peppermint water; or, if flatulence is combined with pain, a tea-spoonful of sal volatile in a wine-glass of camphor mixture may be taken with advantage. Loss of appetite may be remedied by the employment of bitters, such as quinine, or of mineral acids, or of both combined (Recipes 20, 24). Constipation may be removed by laxatives, as Recipes 12 and 13; or by Carlsbad, or Friedrichshall mineral waters, or by the use of brown bread, or occasionally by ripe fruit. Costiveness may also often be prevented by the plentiful employment of salt as an article of diet, and by active exercise. A favourite remedy for costiveness with dyspepsia, at hydropathic establishments, is the use of a cloth wrung out of cold water and applied to the belly. This is called an *abdominal compress*, and is worn under a bandage of macintosh cloth, to keep the moisture from escaping. It is generally recommended to be used for two or three hours in the earlier part of the day. The 'sitz-bath' may also be often taken with advantage. A tumblerful of cold water drunk at night before going to sleep, and another in the morning on rising, will relieve dyspeptic constipation in some habits. When dyspepsia is attended by both constipation and debility, the mineral waters of Cheltenham, Harrogate, Tunbridge Wells, Spa, and Schwalbach are often beneficial. In simple dyspepsia, arising from debility of the stomach, unconnected with other maladies, but when even a carefully regulated diet does not relieve the sense of oppression following meals, the substance known as *Pepsin* often does much good. This medicine may be purchased from all druggists, and eight or ten grains may be taken either before or with the meals, in the same manner as common salt, to which its taste bears a resemblance.

The condition described above under the name 'water-brash' usually disappears under a well-regulated diet, aided by mild aperients. In many cases ten or twelve grains of alum, taken in an ounce of water three times daily, is very beneficial.]

EAR, DISEASES OF THE.—The diseases of the ear which it is desirable to notice are: 1. *Eruptions on the ear, or behind the ear.* 2. *Accumulation of wax in the ear.* 3. *Earache.* 4. *Inflammation of the ear.* 5. *Chronic inflammation of the ear.* 6. *Polypus of the ear.* 7. *Deafness.*

1. ERUPTIONS ON THE SKIN OF THE EAR, OR BEHIND THE EAR.—These 'breakings-out' usually occur to children during the period of teething (*vide* p. 380), and the peculiar form of skin disease thus attacking the ears is generally *eczema* (*vide* p. 343). In such cases, cleanliness must be particularly attended to; otherwise, the skin affection may run into sores. Glycerine soap and water should be used daily, so that all discharge may be gently washed away. Then the treatment should be conducted as given at page 343. But it often happens that these affections of the skin about the ears remain more or less prevalent, in spite of any treatment, until the period of teething has passed. Without treatment, how-

ever, and especially without attention to cleanliness, they assume a more prolonged and inveterate form.

2. Accumulation of Wax in the Ear.—This often causes more or less deafness. In such cases the wax may be seen through an ear speculum (a conical tube with bright interior which reflects light into the ear), or often with the naked eye. Sometimes wax in the ear excites a distressing cough, known as 'ear cough.' A drop or two of salad oil, or of glycerine, should be dropped into the ear at night, to soften the wax, and in the morning it should be gently syringed with a little warm water, which will further soften and expel the wax. A drop of salad oil should then be dropped into the ear, and cotton wool should be applied to prevent cold afterwards.

Method of examining the Ear.—If an ear speculum is not at hand, a piece of stiff white paper, folded in the shape of a cone, will form a good substitute. Take a piece of foolscap, two inches and a half square; cut off one corner, about half way to the centre; then roll the paper in the shape of a cone, the cut corner forming the apex, and the paper being rolled only sufficiently tight to allow of the small open end of the cone being introduced into the ear. Then, seating the patient in a chair, pull the ear backwards and upwards with the left hand, and introduce the speculum with the right. This must be done very gently, and not more than half an inch of the paper should be introduced. Generally the light of the sun may be thrown into the ear sufficiently for the purpose of examination, by seating the person in the sun's rays for a few moments. Otherwise, light may be reflected into the ear, either from an argand lamp at night, or from the sun by a mirror. If sun-light is used, a plane mirror is required, the usual concave mirror soon causing such an amount of heat that the patient cannot endure a long examination.

Method of syringing the Ear.—A bowl should be held by the patient, or by another person, so that the rim is pressed against the skin, close under the lobe of the ear. The operator should then draw the ear upwards and backwards, which tends to straighten the passage. The nozzle of the syringe should be then introduced just within the passage, pressing a little against the upper wall. The syringe should be worked gently, forcible syringing being likely to do harm. Any kind of syringe may be used, but the ear syringe has rings for the two fore-fingers, so that it may be more easily worked with one hand.

3. Earache.—This complaint is in reality neuralgia of the ear. Its causes are those of neuralgia generally (*vide* p. 293), or it occurs from blasts of cold air, or from incautious use of cold water for bathing. But it sometimes arises from a decayed tooth, and in children from cutting the teeth, or from the growth of the second set ; or sometimes in adults from the passage of the wisdom teeth. Earache causes very severe pain, shooting over the head and face. It is distinguished from the pain attending inflammation of the ear by the suddenness of its occurrence, by the absence of fever, and by its not being attended with 'throbbing.' Earache in infants is sometimes difficult to distinguish from 'belly-ache.' This may be known by the former being more continuous, without the intervals of freedom occurring when the bowels are affected. Also by the child putting his hand to its ear, and not drawing up its legs, as it would do from bowel-ache.

Treatment.—The treatment in adults consists in the administration of a purgative dose (Recipes 1 and 2) followed by quinine (Recipe 18). As local applications, a small mustard poultice may be applied behind the ear, or, if practicable, Recipe 90 may be obtained and rubbed in behind the ear. If the wisdom teeth are appearing the gums may be lanced, and carious teeth should be protected by stopping. If the pain is great, a dose of chloral (Recipe 75) may be taken at night. In children, if the teeth have not all appeared, the gums may require lancing, and a senna purgative (*vide* p. 28) may also be desirable. A bag of hot salt may also be applied to the ear, or it may be fomented with hot poppy-head water *vide* p. 591). A roasted onion enclosed in a muslin bag is a favourite domestic remedy, which should be applied as hot as it can be borne to the ear. Cold applications should be avoided.

When earache is intermittent, that is, occurring at regular intervals of hours or days, quinine should be given in doses proportionate to the age of the patient (*vide* p. 5).

4. Inflammation of the Ear.—This may either attack the external passage, and, proceeding inwards, or commencing within, may affect the internal part of the ear. Inflammation of the external ear is attended with smarting, shooting pain, increased by motion, or eating. The ear feels hot and dry, and there are shooting pains in the head. After a day or two, there is a watery discharge, which in a few hours assumes a thin, yellowish description. Inflammation of the ear is very frequent in children while teething; it often accompanies various skin diseases; it may be a sequel of any weakening illness, it may arise from cold currents of air, from too forcible syringing, or be the result of foreign bodies lodging in the ear. If from the latter cause the foreign substance must be removed (vide p. 480). If from teething the gum should be lanced. Otherwise, at the commencement of the attack, little can be done, except fomenting the ear with hot water in which poppy heads have been steeped, to relieve the pain; giving a dose of chloral at night for the same purpose, opening the bowels if necessary, and combating fever with citrate of magnesia draughts (*vide* p. 14). When the discharge presents, it should be *gently* washed away twice or thrice daily by syringing with warm water, and after the syringing an astringent lotion (Recipe 97), first made slightly warm, may be carefully injected. Afterwards tonics, as quinine and iron will be advisable.

When the inflammation attacks the internal ear it is a more serious disorder. The pain is of an acute *throbbing* character, attended with high fever, and sometimes in children with delirium. It may occur unconnected with any other malady, as the result of cold, or it is sometimes the result of extension of inflammation from the throat, or is a sequel of scarlet fever. Deafness very soon occurs, and after the *throbbing* pain has continued for some hours or days, the drum of the ear generally bursts, and matter escapes. When this occurs the internal structure of the ear is often destroyed, and permanent deafness is the consequence.

Treatment.—This should be prompt. Leeches should be applied behind the ear, to the number of one moderate-sized leech for each year of the patient's age; purgative medicines should be administered (Recipes 1, 2); and fomentations should also be applied to the ear, but it will be best not to use a syringe except under medical advice, which, if practicable, should always be obtained for this affection.

[If there is no doubt that the attack is one of inflammation of the internal ear, it will also be desirable to procure calomel and opium pills (Recipe 43), which should be given to adults. For children, calomel without opium, in doses of one sixth of a grain three times daily. The calomel and opium, should be stopped in adults immediately any metallic taste in the mouth or soreness of the gums is perceived. In children it should not be continued if green spinach-like stools appear.]

5. Chronic Inflammation of the Ear.—Should the acute form, as above noted, be neglected, the disease is very liable to result in *chronic*, or prolonged inflammation of the external ear. This chronic form, once established, is most obstinate to treatment, and leads to increasing deafness, to polypus, and probably to perforation of the membrane or drum of the ear. There is a persistent discharge, accompanied by dull aching pain, and by a sense of heaviness or pressure, by a variable amount of deafness, and by a feeling often described as, like 'a drop of water in the ear,' or by sensations of singing, knocking, or 'surging.' In children the disease is often very insidious in its progress, and may cause great injury before its presence is suspected. Till a discharge appears, the ear may not have been suspected as the seat of any disease, on account of the child's inability to localise its pain, or to mention the deafness; and the child, in consequence of the deafness, may be erroneously regarded as careless or stupid. Instances, indeed, have been known when children thus

affected have been punished by, for instance, a 'box on the ear;' the blow directly causing rupture of the drum, already tender from disease. Chronic inflammation of the ear is frequently made worse by even slighter causes, such as the use of an ear scoop, or exposure to cold or wet, after which an increase of all the symptoms may occur. Unless great cleanliness is observed, especially in India, maggots may also form in the ear; the result being then much as described at page 426 as occurring from maggots in the nose.

The fact of perforation or rupture of the drum of the ear may be ascertained by asking the patient to blow forcibly while the mouth is shut, and the nostrils are firmly pressed together. If the drum is broken, air will pass through the ear, and will be both recognised by the patient and probably heard by the bystander. In most cases, the flame of a candle held to the ear will be shaken, and in some instances blown out. When destruction of the drum of the ear occurs, the small bones in the internal ear usually become implicated, and permanent deafness results.

The treatment of chronic inflammation of the ear consists in perfect cleanliness; daily gently syringing of the ear with an astringent lotion (Recipe 98); and counter-irritants, as a succession of small blisters, or iodine paint, applied behind the ear. The general health should also be attended to, and tonics, as quinine (Recipe 17), will generally be required. But, when the disease has gone on to perforation of the drum, syringing should *not* be employed. Cleanliness, and the protection of the ear by a little cotton wool loosely placed in the orifice, is all that may, in the absence of professional advice, be attempted. In all cases of chronic inflammation of the organ, the person should be careful to avoid exposure to cold or draughts, should be particularly careful in well drying the ear after washing it, should wear a little cotton wool in the orifice, and should live under the best possible hygienic conditions.

6. POLYPUS OF THE EAR.—This is a soft fleshy growth, which appears in the ear, springing from the lower part of the orifice or near the drum. It generally occurs after a discharge has lasted for some time, or when inflammation of the external ear has assumed the chronic form (*vide* p. 171). A polypus may be vividly red in colour, or slightly red, or almost colourless, looking like a white grape. The consistency also of the growth may vary; it sometimes being firm and solid, at others soft and easily bleeding. The presence, therefore, of a polypus in the ear may be known, if in addition to more or less deafness and discharge, the characteristic red, or less coloured protrusion, can be seen in passage. The means of cure are extraction by a pair of forceps; an operation which should be performed by a surgeon.

7. DEAFNESS.—Deafness occurs in every degree, from mere dulness of perception of sound to absolute insensibility. As already stated, it may depend simply on accumulation of wax, or on inflammation and its consequences, on polypus, or on enlarged tonsils, in which cases, if remediable, it can only be treated by the means prescribed for such conditions. In other cases deafness results from some affection of the nerve of the ear, and is called 'nervous deafness.' Such deafness may be caused by blows, falls, violent noises, explosions, or any kind of concussion. Or it may be a sequel of certain diseases believed to leave a poison in the system, as scarlet fever, measles, typhus, malarious fever. It sometimes comes on after great mental excitement, or from taking quinine in large and continuous doses. It may be a consequence of debility, and is then often accompanied by ringing, singing, hissing, or other unnatural noises in the ears. Lastly, it may be connected with disease of the brain.

Treatment.—Regard must be paid to the species of deafness. The most generally useful local means are counter-irritants behind the ears, such as iodine paint or blisters. When deafness arises from enlarged tonsils, it is sometimes necessary to remove them by surgical operation. Deafness from simple nervous debility requires tonics and generous diet. There are a variety of instruments, under the name of cornets, trumpets, ear tubes, &c., which render deaf persons able to hear better by concentrating and intensifying the impulse of the waves of sound into the ear. In all cases of deafness the advice of a medical man should be early sought.

EPILEPSY.—Epilepsy is commonly called 'The Falling Sickness,' or, more vulgarly, 'Fits.' Epileptic fits vary widely in character, severity, and duration. A very minor degree of epilepsy often occurs, which is spoken of as 'blanks,' 'forgets,' 'sensations,' 'absences,' or 'darknesses.' There is a momentary staggering, or peculiar sensation, or transient loss of intelligence; the person stops doing what he was about for a moment, and there may be a spasm or convulsive movement of some one limb. From such slight epileptic tendencies, to the typical seizure described below, there may be infinite modifications.

The symptoms of an epileptic fit are as follows:—After a short warning, consisting perhaps of headache, or pain in the limbs, or spasms of the face, or of a limb, the patient is seized with loss of consciousness and loss of power, so that if standing he immediately falls to the ground. Or secondly, he may fall without any previous warning. The fit is generally preceded by a loud cry, and consists of strong convulsive movements of the limbs and trunk, together with spasms of the muscles of the face and eyes, producing various distortions of the countenance. Usually, the first spasm so twists the head round that the sufferer appears to be trying to look over his shoulder. The brows are knit, the eyes fixed and staring, or turned up beneath the lids, so that only the whites can be seen. The eye-balls roll, and the pupils are dilated and insensible to light, but commencing to oscillate towards the close of the paroxysm. The face is at first pale, afterwards becoming red. The skin is cold and clammy. The hands are clenched, and the arms tossed about. The breathing is difficult, or appears arrested, as if the person were unable to breathe. The teeth are gnashed, and foam (often bloody from the tongue being bitten) issues from the mouth. The fæces and urine are often expelled involuntarily. After the convulsions have continued from one to two, five, ten minutes, or even in exceptionally severe cases several hours, the patient becomes motionless, looks round, with a bewildered expression, and generally sinks into a profound sleep. Such fits, of a greater or lesser degree of violence, may occur almost daily, or at intervals of months, or even years.

The causes are various. The disease may be hereditary, or it may be connected with excessive mental or bodily excitement, or with disease of the brain. In those subject to epilepsy, the malady will be excited by debility, dissipation, fright, passion, worms, plethora, indigestion, and the stoppage of accustomed discharges, as the monthly flow of women, by the irritation caused by stumps of teeth, and by a long foreskin.

Epilepsy may be distinguished from hysteria by the total loss of consciousness, by the distortions of the face, by the solitary cry *preceding*, and the dead sleep *succeeding* the fit; none of which signs are characteristic of hysteria. Epilepsy may be distinguished from apoplexy by the *absence* of 'puffing' or *stertorous* breathing, and by the *presence* of the *continuous* convulsions marking epilepsy.

Treatment.—During the fit, the patient should be placed on his back, with the head slightly raised. Fresh air should be admitted freely and the face should be fanned. The neck and chest should be bared, the cravats, stays, and all tight strings or garments about the body being loosed. The patient must be prevented injuring himself, by the limbs being firmly held, without any pressure being made on the chest. To do this the attendants should take care not to stand opposite the patient's feet, lest he kick out and cause injury in his struggles; and also in holding the head, be careful not to allow the fingers to get into his mouth. If sufficient attendants be at hand for the purpose, the best method for holding him is for one to grasp each leg above the knee and above the ankle, and press them firmly downwards to the ground, and the two others to grasp each a hand and the point of the shoulder, while the fifth holds the head firmly between both hands. To prevent the tongue being bitten, a piece of soft wood or linen pad, too large to slip into the mouth, should be placed between the teeth. Nothing should be given or offered to drink for fear of injuring the mouth. The temples may be bathed with vinegar during the fit, or, if the head is hot, a stream of cold water from the spout of a kettle may be gently poured on the forehead. After the fit the patient should be allowed to sleep, but if the patient does not sleep and appears much depressed, a stimulant, as a glass of wine, may be allowed.

In the intervals between the fits, temperance, exercise, occupation, spare living, and the avoidance of all bad habits should be enjoined. Constipation, worms, stumps of teeth, and too full a condition of system, if present, should be appropriately treated. If the patient is a female, the condition of the 'monthly flow' should be inquired into, and medicines given to correct any irregularity of this function. If the patient is weak and irritable, tonics will be required. As a general rule the following advice may be safely taken by epileptics. Keep the bowels gently open, the head cool, the feet warm, the mind easy, never wear tight clothing, and avoid intemperance and indigestible articles of diet. The epileptic tendency may sometimes be successfully combated by the systematic use of an exclusively vegetable diet, or by a very considerable reduction in the proportion of animal food.

[During the intervals between the fits bromide of potassium should be taken in full doses. To begin with, the patient ought to have ten grains three times a day in two ounces of pure water, the dose being increased at the rate of two grains every three days up to thirty grains. This does good in a majority of instances, although in some it does not. In such cases the physician would probably prescribe strychnine or nitrate of silver. But these latter agents require great care, and should not be used unless under the immediate supervision of a qualified medical attendant.]

EPILEPSY, FEIGNED.—Epilepsy is sometimes feigned, but an impostor does not fall violently, but throws himself down in such a way as to avoid injury. The eyes are closed instead of being fixed and staring; the pupils contract on being exposed to light; the tongue is not bitten; the face is red instead of pale; the skin is hot from the necessary exertion; and neither urine nor fæces are voided. Proposing to apply the actual cautery (or red-hot iron), or to shave the head, often frightens the impostor, so that he speedily recovers. Or blowing snuff into the nostrils will change the fit into one of sneezing.

ERUPTIONS.—Eruptions are of different kinds, and those of one class mark various kinds of fevers, which are, therefore, frequently termed *eruptive fevers.* Under this term are comprised typhoid fever, dengue fever, typhus, chicken-pox, measles, scarlatina, small-pox. Eruptions also occur without febrile symptoms as purely skin diseases, either connected or not with syphilis. The different eruptions are described under the headings of the various maladies of which they are part, or under the head of *Skin Diseases* (*vide* p. 332).

ERYSIPELAS.—Erysipelas is often called 'St. Anthony's Fire,' and is an inflammation of some portion of the skin. It may be excited by exposure to cold, and it most usually attacks those who are out of health from constitutional debility, or from bad food, from neglect of cleanliness and sanitation, and particularly from exposure to the impure air of hospitals or gaols. Erysipelas is most common on the face, which becomes red and much swollen, the redness disappearing for a few moments on pressure of the part with the finger. Sometimes the swelling is so great that all distinctive features are quite disguised. With the commencement of the redness, or previous to its appearance, there is chilliness or shivering, headache and nausea, followed by vomiting and high fever, with constipated bowels. The redness of the skin affected now becomes more defined, with severe burning of the part, on which at length small blisters may form, discharging a yellow fluid.

Simple erysipelas as here described generally runs its course in from ten to fourteen days, the inflammation increasing for four days, after which it declines as the blisters mentioned above form. In more severe cases, the tissues underneath the skin are also affected, there is intense *throbbing* pain, and matter forms; the resulting abscesses and sinuses (*vide* pp. 44, 48) adding much to the danger, and indefinitely prolonging the disease. If the disease passes inwards towards the brain, it may prove rapidly fatal.

Erysipelas frequently attacks wounded parts, or parts which have been subjected to surgical operation, or sometimes vaccinated arms, when the surface of the surrounding skin, or even of the whole limb, becomes red and swollen as above described. When this occurs the discharge from the wound ceases, and if nearly healed it reopens. An unhealed or irritable condition of the navel-string renders infants very subject to erysipelas, which spreads from the navel, if the child has been exposed to contagion.

Treatment.—The part affected should be covered with lint soaked in tepid water, over which oiled silk should be laid, or the inflammation may be dusted with flour, which is often found very soothing; or if neither of these applications relieve the stinging pain, salad oil may be tried. A purgative, as sulphate of soda (Recipe 2), or castor oil, will generally be required at first, after which the strength of the patient must be supported by nourishing diet, by an allowance of brandy and wine, and by the administration of quinine (Recipe 17) every three hours. If blisters form, they should be pricked for the water to escape. Matter forming will generally require lancing of the skin over the part where it presents. As a general rule, when erysipelas attacks a wound or injured part it should be poulticed.

Of all the predisposing causes of erysipelas, deficient ventilation is probably the chief; and therefore the greatest care must be taken to admit fresh air, without draughts, into the apartment. When erysipelas attacks wounded or injured parts, ventilation is of still greater consequence. Unremitting attention should be paid to the cleanliness of the patient, and everything about him. The bed-linen ought to be frequently changed, and not be allowed to remain when soiled by discharge. The part affected should not be wiped with a sponge but with cotton wool, which should be immediately burned or buried. The patient's bedroom should be emptied of all but indispensable articles of furniture, and bed-curtains should be taken down. The motions should be at once removed and disinfected. In short, the whole of the rules given at page 605 regarding disinfection, should be carefully carried out.

[In most cases of erysipelas it will also be desirable to give some preparation of iron, and Recipe 22 may be procured and given *with* the quinine.]

EYE, DISEASES OF THE.—The diseases affecting the eye or its appendages, of which it is desirable to treat in a work of this description, are: 1. *Affections of the eyelids.* 2. *Ophthalmia.* 3. *Ulcer of the cornea.* 4. *Iritis.* 5. *Cataract.* 6. *Spots before the eyes,* or *Muscæ volitantes.* 7. *Short-sight.* 8. *Squinting.*

1. Affections of the Eyelids.—(1) Stye.—This term is applied to a small painful boil at the edge of the eyelid. It should be frequently well fomented with hot water, permitted to come to a head, and then pricked with a lancet to let the matter out. If an eyelash grows from the stye, the hair

should be plucked out with a pair of pincers. Stye generally depends on indigestion, but is indicative of a debilitated condition of system.

(2) A more important disease affecting the same part, and technically known as *tinea*, or *ophthalmia tarsi*, consists of the formation of a number of little styes or pustules at the roots of the eye-lashes. They discharge a yellowish-brown fluid, which mats the eye-lashes together. There is often considerable smarting and itching. The malady is most common in children affected by a scrofulous taint. If it becomes chronic, or is neglected, it may destroy the structure from which the eyelashes grow, so that ever afterwards eye-lashes may be more or less wanting. The treatment consists of frequent washing with warm alum wash (Recipe 97) to prevent the accumulation and crusting of discharge. At night simple ointment (Recipe 86) or salad oil should be carefully applied, with a camel-hair brush or feather, to the eyelids, to prevent them sticking together during sleep. Attention to the general health will also be required. The bowels should be kept open, and tonics (Recipe 17) may be taken.

[But a better ointment to use in such cases is composed of one third nitrate of mercury ointment, and two-thirds simple ointment; and a better tonic medicine is citrate of iron and quinine (Recipe 21), both of which remedies should, if possible, be procured. In chronic cases of this kind, a course of cod liver oil is also often advisable.]

(3) When matter forms at the corner of the eye, it usually does so in what is called the *lachrymal duct*, the minute entrance to which may be seen near the inner corners of the eyelids. The duct conveys the tears from the eye to the interior of the nose, and if abscess destroys the passage the person suffers from watering of the eye, which becomes a source of much trouble. The best application for threatening abscess in this part is constant fomentation with hot poppy water (*vide* p. 591).

2. OPHTHALMIA.—This term implies inflammation of the surface of the eye. There are several varieties, marked by a greater or less degree of violence. In mild cases the inflammation may not extend beyond the surface of the white of the eye, which is injected with red vessels, running in *different* directions, and not straight from the centre towards the circumference, as described under *Iritis*, or *inflammation of the iris* (*vide* p. 185). There is also a feeling as if sand or grit were in the eye. There is intolerance of light, and the eye is watering and weak, and, particularly in children, especially if scrofulous, obstinately kept shut. There is also pain in the forehead or head generally, and often some feverishness. There is a discharge from the eye, at first clear and thin, but afterwards thicker and of a white colour. During sleep this discharge collects at the edge of the lids and dries there, gluing together the eyelashes, so that the person finds a difficulty in opening the eyes after sleep without first bathing them with warm water. One or both eyes may be affected. Or one may be affected first, and the other afterwards. It often results from cold, but when once formed it is infectious, sometimes attacking whole families. Therefore, in all cases of ophthalmia the greatest care should be taken that towels, soap, water, &c., are not used in common. The duration of the disease may be a few days, or several weeks.

Treatment.—This consists in keeping the patient in a darkened room with a green shade over the eyes, bathing the eyes frequently with hot water, or with hot milk and water; or using an alum lotion (Recipe 97) if, as sometimes happens, the hot water is not acceptable to the feelings of the patient. A purgative (Recipes 1 and 2) should also be administered if the bowels are confined. When there is much discharge and the eyelids are swollen, red, and inflamed, fomentation with hot poppy-head water (*vide* p. 591) often affords much relief. If there is persistent pain, a leech or two may be applied to each temple at the margin of the hair. The edges of the lids should be anointed every night with salad oil or glycerine. The diet should be light but nourishing.

Purulent Ophthalmia is the term applied to a very severe variety of the disorder, which may result from similar causes, or which may originate from neglect of simple ophthalmia, or otherwise from noxious matter (as the discharge passed in gonorrhœa) being introduced into the eyes, either from using dirty cloths or otherwise. The inflammation in this disease is very severe, the whites of the eyes are so swollen that the middle of the eye or cornea is almost hidden, and the pain is very great. Instead of a watery or slightly white discharge, yellow matter is secreted which escapes from the eye in considerable quantities. In some cases, the inflammation attacks the deeper parts of the eye, and the organ is destroyed. Purulent ophthalmia often occurs during small-pox. This malady is highly contagious, and spreads occasionally throughout the inmates of houses, schools, or barracks when there are faulty hygienic conditions. Therefore, when the disease occurs, the rules given at page 605 regarding disinfection should be as much as possible carried out. The duration of the malady may be from ten days to two or three weeks; but it often leads to other affections of the eye, as *ulcer of the cornea* (*vide* page 184), or to a rough and irritable condition of the inside of the lids, known as *granular conjunctiva*, either of which ailments may prolong the illness for months.

Treatment.—The eye should be well washed and fomented every two or three hours with hot poppy-head water (*vide* p. 591), and care should be taken that the disease is not communicated, by cloths or otherwise, either to the other eye, if sound, or to the eyes of attendants. The face should be kept clean, and the eye or eyes affected should be covered with cotton wool and a light bandage. The cotton wool should be ly removed and burnt. The patient should be kept rkened room, and the bowels should be opened, if y daily, by Recipes 1 and 2. When the pain and ation are great, it will be desirable to apply five or ies to each temple; a measure adopted to allay local n, not to weaken the patient. The edges of the lids be smeared nightly with salad oil to prevent them together; and if the discharge appears to harden he lids, the nozzle of a glass syringe, charged with ilk and water, should be carefully and gently inserted the lid and the eyeball, taking care not to press on er, and its contents made to pass quickly over the surface of the lids. As the fluid escapes it carries any matter which by prolonged retention would tend vate the disease.

most useful internal remedies are quinine (Recipe 17) ic, and chloral (Recipe 75) to allay pain. When the lence of the inflammation has subsided, it will be o wash the eyes very frequently with an alum lotion 97), some of which should be permitted to fall into s (as described below) several times daily. The of purulent ophthalmia are often of naturally feeble tion, or are debilitated by prior ill health, or from uses. The strength, therefore, should be maintained but easily digestible food, and a little wine may be y allowed.

the remedies as above do not prove satisfactory, blisters should alternately behind the ears and to the temples; and a solution of silver, of the strength of ten grains to an ounce of water, may d, a drop of which should be dropped in the eye from a quill twice daily. It is a painful application although often very e. It is also sometimes necessary to lance the inflamed eye in prevent more serious mischief. The malady is therefore one lemanding skilled advice.]

o foment the Eye.—Place the fluid in a large basin, hold the it, dip a piece of lint or soft linen rag in the fluid, and without pply the fluid freely to the eye. This should be continued for several minutes; then lay the patient on his back, open the eye, and squeeze the wet rag over it so as to allow the fluid to run into the eye. This simple method is more satisfactory than the use of glasses or apparatus sold for the purpose.

How to apply Lotion to the Eye.—A camel-hair brush, or a quill cut oval-shaped may be used. Fill the brush or quill with the lotion, draw down the lower lid, and let the fluid drop into the eye. In order to get the fluid well within the upper lid, move the latter up and down, and the whole surface will be wetted. The brush or quill should be washed in warm water after use.

3. Ulcers of the Cornea, or central part of the eye, often result from neglected ophthalmia, and particularly from ophthalmia (even sometimes in spite of treatment) occurring in scrofulous children. In such cases, while the white of the eye presents the injected appearance above described, one or more red vessels may be seen stretching from the margin towards the centre of the cornea or middle of the eye, in some part of which a small rough-looking, or white-coloured spot will be discovered; there is also much intolerance of light and watering of the eyes. In bad cases several of these little white spots may form, which are, in fact, ulcers of the part. If the case proceeds favourably, the white of the eye loses its injected appearance, the red vessel or vessels on the cornea disappear, and the ulcer gradually heals, often, however, leaving a white spot or film, which may or may not also disappear during the next few weeks or months. When the disease has been very severe, and does not progress favourably, a large white film is left on the cornea (called *opacity of the cornea*), interfering very much with sight. In still worse instances, the cornea is quite converted into a white mass, and the person cannot see at all.

Treatment.—When ulcer forms, the treatment should be very decided. A darkened room must be insisted upon, and the eyes should be assiduously fomented with poppy water (*vide* p. 591), until the inflammatory redness of the white of the eye has almost disappeared. Then the essential point is atment will be the improvement of the general health. et should be nutritious, and a little wine should be . Quinine should be given, and exercise short of should be taken in the open air, the eyes being well ed from light and glare. Lead lotions should not be s they may leave a permanent stain on the eye.

ing the earlier stages of ulcer of the cornea, a solution of atro- opine two grains, water one ounce) should be if possible obtained, op should be dropped into the eye once or twice a day. Blisters so be obtained and applied, alternately, behind the ears, and to les. Iodide of potassium (Recipe 45) should be given internally. tter stages it may also be advisable for the ulcer to be *very lightly* every second day, with a very fine pencil of nitrate of silver. But operation requiring great care and delicacy of touch, and should performed by those well aware of the properties of nitrate of d of the appearances rendering its application desirable.

child of three years old, with ulcer of the cornea, two grains of potassium three times a day, and Recipe No. 16 if the bowels ed, would be an appropriate prescription, which should be con- r a week. But in some cases *occurring in scrofulous children*, iron and quinine, are necessary from the first. If possible, the a medical man should be obtained. The white mark often left lisease on the cornea is sometimes disguised by oculists, by the part with a solution of gall nuts.]

RITIS.—Iritis is inflammation of the 'iris,' or that the internal eye in which the round ring of the pupil d, and which gives the various colours of the eye. In ease, while the white of the eye is injected, by red unning from the middle towards the circumference rally straight lines, the cornea or centre of the eye *Through this* can be seen the 'iris,' which becomes red, reddish if naturally dark, greenish if naturally Afterwards a white deposit takes place, and the pupil thereby blocked up. There is always intolerance of id severe stinging pain of the eye and forehead, with feverishness. The causes of the iritis may be, in- ver-exertion of the eyes, venereal disease, or perhaps condition of the system.

Treatment.—In the absence of the necessary medicines, as referred to in the small type below, and which are not carried in the companion case to this volume, the eyes should be protected from light by a green shade and darkened room, and fomentation with hot poppy-head water should be frequently applied. If necessary, the bowels should be relieved by purgatives (Recipes 1, 2), six or eight leeches should be applied to the temple of the affected eye, and chloral (Recipe 75) may be given at night to relieve pain. If the disease has occurred to a debilitated person, or to one who has suffered from rheumatism, or gout, or who is scrofulous, Dover's powder (*vide* p. 12) may be given at night and small doses of quinine (Recipe 18) three times daily.

[The advice of a medical man, or that impossible, the following remedies, should be obtained immediately. For a patient of fairly good constitution, who is not rheumatic, scrofulous, or debilitated, calomel and opium pills (Recipe 43), which should be given until there is a metallic taste in the mouth, or until the gums are slightly tender. Under the influence of the mercury the deposit will be seen to break up and disappear, leaving the pupil clear. But if the patient is debilitated or rheumatic, iodide of potassium (Recipe 45) should be substituted for the calomel. In all cases a solution of atropine (atropine two grains, distilled water one ounce) should be dropped into the eye twice or thrice daily. This medicine dilates the pupil of the eye, and tends to keep it clear of deposit. If calomel is given as above, when it is discontinued, iodide of potassium mixture should be commenced.

If the patient is debilitated from any cause, liberal diet and tonics will be necessary, after subdual of the primary inflammation.

5. CATARACT.—Cataract is a degeneration of the part of the eye called the 'lens.' It most frequently occurs in elderly people, and one or both eyes may be affected. In the healthy eye the *lens* cannot be seen, but when cataract occurs it assumes a white or bluish-white appearance, and may be detected through the pupil or circular central opening of the eye. Cataract may be months or even years forming. It must be distinguished from a white deposit on the front of the eye called 'opacity of the cornea,' and resulting from

ophthalmia or inflammation (*vide* p. 184). In cataract vision is impaired, growing progressively worse, and the patient sees best in twilight, or when with his back to the light. Surgical operation is the only cure for cataract.

6. **Spots before the Eyes, or Muscæ Volitantes.**—Persons of sedentary habits or delicate constitutions, especially if they are in the habit of writing or reading much, or otherwise exercising their sight on minute objects, are liable to suffer from spots before the eyes in the shape of black motes, or grey films, or an appearance something resembling spiders' webs. In some cases small circles with central spots are apparent. Such impediments to vision are more perceived when the sky or some white object is looked at. They often first occur very suddenly, and may be the cause of much uneasiness, as it may be thought they are significant of some serious disease. But as a general rule this is not the case, although they sometimes occur as the forerunner of *Amaurosis*. Frequently they are symptomatic of indigestion, or if not caused by indigestion they are more apparent or troublesome when the stomach or liver is out of order. They often continue without increasing for many years.

Treatment.—Any particular employment which may seem to have caused the affection should be discontinued or pursued with less energy. Tonics, change of air, and rest to the eyes are the main remedies. The state of the digestion should be inquired into and any error appropriately treated. Care should be taken not to wear tight cravats or collars, and the person affected should not read at night, or when lying down.

If the spots increase, or are very annoying, or if they are accompanied by weakness of sight, blue spectacles may be worn, of a lighter or darker shade, according to the degree of protection required. Blue spectacles are better than either brown, smoke-coloured, or green. Green spectacles protect the eyes only from red rays; while brown or smoke-coloured glasses intercept all rays equally, thus rendering vision indistinct. But blue glasses intercept only orange rays, which are the most intolerable to a sensitive eye.

7. SHORT-SIGHT.—Short-sight most frequently depends on too great convexity of the *cornea* (or front part of the eye), or of the *lens* (in the interior of the eye), or of both. The rays of light are brought to a focus, before they reach the proper part of the eye (*retina*), instead of being concentrated upon it. An opposite condition of the refractive *media* of the eye gives rise to *long-sight*; and as this opposite condition occurs as persons grow old, long-sight is most common after forty-five years of age. For similar reasons, *short-sight* often improves as people grow older. Short-sighted persons should avoid over-working the eyes, and especially by the examination of minute objects, or by writing in artificial light. Well adjusted concave pebble glasses should be used; but the weakest power which will serve to assist vision should be chosen. The glasses should only be worn when actually required. Single glasses tend to alter the power of the eye, and are therefore not to be recommended. For *long-sight* convex glasses are required, and they should be so worn that distant objects may be seen over them at pleasure.

8. SQUINTING.—A squint may be either single or double. It depends on want of equilibrium between the muscles which move the eye. It may be present at birth, or may come on during childhood. It sometimes arises from the irritation of teething, or from worms, and may be a result of the debilitated condition left by fevers. Sometimes a film, or *opacity* on the cornea (*vide* p. 184), leads to squinting. The treatment, therefore, of squinting must depend on the cause. When congenital, a surgical operation may be required.

FAINTING or SYNCOPE.—This condition may occur from numerous causes. It may result from loss of blood, as from a wound, or from fright or sudden shock to the system; it may be produced by a blow on the stomach, or by intense pain; or it may be connected in women with irregularities of the 'monthly flow.' It may even arise from bad smells, or unpleasant sounds. The persons most liable to fainting are females, and young men of nervous temperament. The first symptoms are giddiness, 'swimming' in the head, and pallor. A person in a deep faint is pale, unconscious, with feeble pulse, dilated pupil, relaxation of the limbs, unfrequent irregular scarcely perceptible breathing, white lips, and a death-like expression of countenance. In such a condition the body should be *at once* placed in the recumbent position, the head even being allowed to hang down lower than the body, cold water should be dashed on the face and cold air admitted into the room, or the person should be taken out of doors. The limbs should be well rubbed, and smelling-salts may be held to the nostrils. It is not, however, right to use very strong stimulating vapours, as injury to the nostrils may arise therefrom. A burnt feather held smoking under the nose is a better remedy than ammonia. In prolonged faints, a mustard poultice should be applied over the heart. The subsequent feeling of painful languor will be relieved by the use of wine in moderate quantities. For the *prevention* of a fainting fit, nothing is better than lying down at full length, without a pillow under the head; or, if not able to lie down, the head should be bent forward between the legs. Persons subject to fainting usually require tonics and out-door exercise, and should avoid constipated bowels.

FAT, ACCUMULATION OF.—Europeans in India, and indeed Natives, are often observed growing very stout, and sometimes this increase of size occurs rather suddenly, not only giving rise to inconvenience, but sometimes even constituting disease. The cause is, probably, too much fat-forming food, and too little exercise at that period of life when the accumulation of a little fatty material may be regarded as natural. When the fat is equally distributed about the body, no immediate disadvantage may be experienced; but when it

is accumulated in distinct parts, interfering with the
tions of particular organs, its evil influence becomes ap
The average weight of a healthy adult man in the pr
life, or from twenty-five to thirty-five, five feet in hei
115 lbs., to which standard 5 lbs. may be added for
inch in height. For females, the average is so
lower. When persons weigh much above their height
are growing fat, and there is a tendency to impairment
powers, both of the muscles and of the blood vessels (art
The heavier man carries greater bulk, and his heart
propel into a larger mass of tissue a larger amount of
Hence one form of evil, viz. an overworked heart, res
from accumulation of fat, and which is characterised by
ness of breath and sometimes by palpitation. In addit
this, fat may collect about, or in the substance of, the
giving rise to the malady known as *fatty degeneration*
organ. This is marked by aggravated symptoms as
and is generally accompanied by a peculiar appearance
eyes, designated the *arcus senilis*, and known by a
opaque or whitish zone presenting near the margin
cornea (or the circle of the eye where it joins the
Fatty heart is a very dangerous malady, and any suspic
such affection should lead to application for medical
All that need be said here is, that persons so affected
avoid *all* kinds of exertion, hurry, or excitement.

When persons are growing too fat, the great princ
prevention is, the avoidance of those articles of food
are known, when taken in excess, to produce obesity.
meat, bacon, fat pork, white bread, potatoes, starchy f
tapioca, rice, arrowroot, sago, sugar, beer, and wine, or
must be interdicted, or at least taken in moderation.
bread, toast, biscuits, rusks, lean of any kind of meat, fis
or game, green vegetables, as cauliflower, asparagu
lettuce, celery, fruit, and light wines, should form th
Even if the regimen as above sketched cannot be stric

hered to, attention to its leading principles will not only prevent accumulation of fat, but also lessen the amount present in the system. The change from one system of diet to another should, however, be made gradually. The sudden withdrawal of accustomed articles of food is unwise, and it is better to lessen gradually the fatty portions of the diet than to go to extremes. Moderate exercise, and care not to eat too much, will materially assist the dietary.

FEET, TENDERNESS OF THE.—Some persons suffer much from tenderness of the feet, and are unable to wear boots sufficiently thick to protect from jungle, thorns, &c. For the relief of this annoying condition nothing is better than bathing the feet daily in strong salt and water. Tender feet are often found perspiring and smelling offensively. Salt and water bathing will also tend to correct this, especially when aided by perfect cleanliness, and clean socks once if not twice daily. Cold feet may be relieved by immersing them for two or three minutes every night in cold water, rubbing all the time, and then putting warm socks on.

FEVER.—The following is a brief general description and definition of the term Fever. All varieties of fever are characterised by unnatural heat of skin, a quickened pulse, furred tongue, disordered stomach, scanty and high-coloured urine, with great thirst. Such a condition is common in most diseases, and after injuries, when the person is said to be 'feverish.' But fever exists as a disease *per se*, or unconnected with any other malady. And of such fevers there are two great divisions: the one class marked by a *continuance* of the symptoms from the origin to the termination of the attack; the other class characterised by the more or less complete *cessation* of symptoms for a variable time, during which the patient may appear in good health.

Of the first variety, the fevers met with in India are, *Simple Continued Fever*, *Ardent* or *Sun Fever*, *Typhoid Fever*, and *Typhus Fever*.

Of the second variety, *Relapsing Fever*, *Intermittent Fever* or *Ague*, *Remittent Fever*, *Masked Malarious Fever.*

SIMPLE CONTINUED FEVER commences with a chilly sensation, pain in back and head, languor, weakness and loss of appetite, quick pulse, and heat of skin. Such symptoms may be caused by exposure to cold and wet, or even by indigestion or over-fatigue, and they may disappear under rest and a purgative. The fever is then often spoken of as *Ephemeral Fever*. But the malady may continue by the skin becoming hotter, the pulse quicker, and the disorder of the stomach (evidenced by frequent vomiting and inability to retain food) more decided. It is to this condition that the term *gastric fever* is frequently applied (*vide Disorder of the Stomach*, p. 361). If, in addition, diarrhœa occurs, a bad attack of typhoid may be suspected, and the treatment should be conducted as mentioned in the *para.* on the latter disease. In other cases, the treatment of simple continued fever consists in perfect quiet, good ventilation, maintaining the bowels moderately open by Recipe 2, in giving citrate of magnesia draughts to allay feverishness, and in treating the accompanying disorder of the stomach, as mentioned under that head, *vide* p. 361.

FEVER, ARDENT OR SUN.—This fever chiefly prevails in the months of April and May, and in seasons when the temperature is unusually elevated. It is by many authorities regarded as a form of *sun-stroke*, and by others as an aggravated form of simple continued fever. The attack is generally sudden, commencing with premonitory chills. There is great heat of skin and great thirst, the tongue is parched, red and dry, the pulse quick and strong; there is headache, flushed face, throbbing of the temples, restlessness, nausea, and bilious vomiting. The duration of the disease is about sixty hours, after which, if amendment does not take place, insensibility precedes death.

Treatment.—Leeches to the head, shaving the head, and the application of cold to the head, a darkened room, rest, quiet, and repeated purgatives (Recipes 1, 2), are the remedies required. In the latter stages, if great exhaustion occurs, it must be combated by ammonia, wine, brandy and water, and nourishing broths.

FEVER, TYPHOID.—Typhoid fever is called also *enteric* fever, from its always affecting the bowels; and it has been termed *pythogenic* fever, meaning fever generated by dirt. Typhoid is almost always found to be connected with defective sewage, or inefficient conservancy arrangements; such as a water-closet out of order, or escape of sewer gas into a house. The tainted atmosphere resulting from such conditions is, if not the actual cause, certainly the predisposing and localising excitant of the malady; and it acts more powerfully on those exposed to the injurious influences of overcrowding and defective ventilation. It is also believed to arise from drinking water contaminated from sewers, and especially from sewers into which the discharges from typhoid fever patients have been introduced. Thus, a pump or well, and a cesspool or sewer, in close proximity, is very likely to give rise to typhoid fever in those drinking such water. Milk also has conveyed the disease, after dilution with contaminated water. There is also evidence that the contagion may be conveyed by clothings which have been washed in contaminated water. Although thus caused by a specific poison, it is believed that when once originated the disease is communicable, and may be contracted by other persons. It is most contagious at an advanced stage, or during the third week. Typhoid fever is more likely to attack young than elderly people; and it is most prevalent during the autumnal months.

Symptoms.—The onset of typhoid fever is always very gradual and insidious. It commences with feelings of *malaise*, aching in the limbs, headache, loss of appetite, and chilliness. But for some days the sufferer is able to go about thinking there is not much the matter. Frequently the bowels are *relaxed from the first*, and the person may be supposed to have ordinary diarrhœa. There may also be from the commencement, marked symptoms of stomach derangement, as nausea, vomiting, and inability to retain food. At length the pulse, at first feeble, becomes quicker and full, the skin hot, and the tongue red and dry, and at about the end of the first week the patient takes to his bed. The fever, when closely watched, is now found to be slightly remittent in type, showing an *exacerbation* or increase in the afternoon, and a *remission* or diminution towards morning, although it never varies to the extent of true remittent. The urine is scanty and high-coloured, there is increasing restlessness at night, the face is often pale with a pink flush on the cheeks, while the eyes are clear and bright. The diarrhœa continues, and the stools passed are thin and of a yellow colour, sometimes resembling pea-soup. If now the hand is pressed over the right side of the patient's abdomen, his face will probably express pain, and a gurgling may also be felt and heard under the fingers. Between the seventh and twelfth day, the peculiar eruption of typhoid fever appears on the chest, abdomen, and back; consisting of a few slightly raised rose-coloured spots, which disappear temporarily on pressure under the finger, and fade away in two or three days, being in the meantime succeeded by fresh crops. On the darker skin of the Native the eruption of typhoid fever appears very like flea bites. In favourable cases, and especially in children, after the appearance of the eruption, a diminution of the fever takes place. In favourable cases the patient may improve about the end of the second week, when the remissions of the fever become more distinct, the diarrhœa lessens, the tongue cleans, the pains in the limbs cease, the patient sleeps at night, the temperature of the body decreases, and the appetite returns. In more severe cases, about the middle of the second week delirium comes on, at first slight, and only noticed at night, afterwards more constant, intense and noisy. The tongue becomes drier, red and glazed, and often cracks in various directions, while dry black crusts, called *sordes*, form on the teeth. The lips also crack and bleed. As the time advances, or during the third week, the patient loses flesh and strength, he lies prostrate and often unconscious of what is going on around him, and if the case ends fatally, he will become quite insensible, his temperature will rise higher, and he will pick and 'fumble' at the bed clothes. Dilated pupils, bleeding from the nose, hæmorrhage from the bowels, muttering delirium, are all unfavourable symptoms.

The temperature of the body should be frequently tested during the progress of typhoid fever, by the introduction of a clinical thermometer into the arm-pit (*vide* p. 34). If the temperature rises above 105° Fahr. in the early morning, or above 107° at any time, recovery is rare. In a typical case, during the first week, the temperature rises perhaps to 105°; during the second week the daily morning and evening temperatures are identical, a little above 105° in the evening and below 105° in the morning; during the third week, the morning temperature is a little lower; during the fourth week there is a gradual fall. A sudden or irregular rise of temperature during typhoid denotes some local complication, probably in the lungs, which organs are very liable to become congested. A marked fall of temperature not unfrequently precedes dangerous bleeding from the bowels. Sudden variations of the pulse will denote similar complications.

Typhoid fever may be further complicated, and rendered more dangerous, from the accompanying diarrhœa being very profuse and exhaustive. There may also be profuse hæmorrhage or bleeding from the bowels. Perforation of the bowel may also occur, between the twenty-fifth and thirty-second day; an accident attended with symptoms of *collapse*, and always proving fatal. Inflammation of the bowels may supervene, or the spleen or liver may become enlarged. There may also be intense gastric irritation, marked by incessant vomiting and irritability of the stomach, to which complication the term *gastric fever* has often been erroneously applied. The lungs may also become affected.

The duration of typhoid fever from the commencement of the premonitory symptoms is ordinarily from three to four weeks: but there may be relapses. The mortality from typhoid fever is one in every six attacked.

In adults, typhoid fever may be mistaken for *typhus*, or for *remittent*, and the distinctions are given at pp. 200, 216. In children, typhoid may be mistaken for *water on the brain*, and for *disordered stomach*, and the distinctions are given at p. 364.

Treatment.—The patient should be placed in a well-ventilated room without curtains or other impediments to perflation by the air. The light from the windows should be prevented falling on the patient's eyes, and all noise should be stopped. The bed should not be too soft, and an india-rubber sheet should be placed under the patient. He should not be allowed to exert himself at all, but should try and husband all his strength. The greatest cleanliness must be observed, and *all* the rules regarding disinfection, given at p. 605, should be *carefully attended to.* The back must be protected against bed sores by the judicious arrangement of pillows, or by air or water cushions; especially where pressure has rendered the skin red and tender. To guard against the occurrence of bed sores, the back and hips should be examined and cleaned daily, and then bathed with alum water (*vide Bed Sores*, p. 63). The body should be daily sponged with tepid water, the nurse drying and sponging one part at a time, so as to prevent chill from exposure; this relieves the patient and tends to remove the unpleasant smell so common during fevers. Headache may be relieved by cutting the hair very short, by ice or cooling lotions. Milk, beef tea, broths, jellies, extract of beef, Liebig's raw meat soup, should be the only articles of diet; and *no solid food* should be allowed under six weeks or two months; because, in consequence of the ulceration of the bowels occurring in this disease, the coats are very thin and liable to burst. Eating an orange, or a piece of potato, or drinking an effervescent draught, may cause distension of the bowel and rupture it just when the patient is otherwise doing well. The greatest precautions should therefore be taken that no solid food is given during the third and fourth week especially, when this accident is most likely to occur. After the first week wine or brandy, in the proportion of two ounces of the former or one of the latter every three hours, will generally be necessary. But in typhoid, *as in all other fevers*, the use of stimulants, and the amount to be given, must be guided by the effects produced. If, after stimulants, the tongue becomes more moist; or if the pulse becomes slower; or if the skin grows more moist; or the delirium less, the stimulants are doing good; if the reverse occurs, they are doing harm. In any case, and at all times, the fever may be moderated by saline cooling draughts, as citrate of magnesia (*vide* p. 14) taken *after effervescence has subsided*, and by cooling applications, as vinegar and water, or Recipe 83, to the head. The diarrhœa need seldom be checked unless the patient is purged more than eight or nine times in the twenty-four hours, and then a starch injection (Recipe 104) may be given, and ipecacuanha in two-grain doses three times a day. If this does not succeed, or if there is bleeding from the bowels, a drachm of powdered alum should be added to a pint of boiling milk, which should be then strained. Two ounces of this alum whey may be given after each motion of the bowels. Milk and lime water in equal parts are also often very beneficial. If *the skin is moist*, and there is little or no headache, sleeplessness and delirium may be met by an opiate as chloral (Recipe 75). But no opiate should be used, except under medical advice, so long as the skin is *hot and dry*. Before giving an opiate it should be ascertained if the patient does or does not sleep, as he will frequently assert he does not do so when sleeping for hours every night. When the patient is unconscious, care must be taken to empty the bladder, as it often happens he is unable to make water. In such cases the catheter will be required (*vide* p. 430).

[From the preceding remarks it will be observed that more is to be done in this disease by care and good nursing than by medicines. Should the diarrhœa become excessive, and not to be checked by the measures noted above, Recipes 59 and 62 may be obtained and tried in succession. The latter Recipe (62) is also very serviceable when hæmorrhage or bleeding occurs.

During typhoid and in other fevers, when the temperature rises above 103°, cold, or even iced baths sometimes do much good. The patient may be lifted in a sheet, and placed in the water at a temperature of 68°, where he should remain from five to seven minutes, after which he should be rapidly dried, and wrapped in dry sheets. Two or three baths should be given daily, and, if necessary, the same water may be used several times. Or the patient may be packed in a wet sheet, which is preferable for children and delicate persons. This treatment is not, however, recommended, unless under medical supervision.]

FEVER, TYPHUS.—Typhus fever was formerly unknown in India, but has now been distinctly recognised in this country. The disease commences with severe headache, chilliness, loss of appetite, languor, and aching of the limbs. The commencement of the fever is sudden as compared with *typhoid* fever, and in two or three days the patient takes to his bed. When the disease is formed, there is a general aspect of a typhus case, which an experienced person will at once recognise. The patient lies prostrate on his back, with a dull, stupid expression, the eyes are suffused and watery, and a dusky flush overspreads the face. As the disease advances, the eyes are half shut and the mouth open; the patient lies moaning, and unable to move himself or answer questions; he probably grows deaf; and the lips, mouth, and teeth are dry and covered with black *sordes*. The tongue is covered with black or brown fur, the margins being often pale; and this coat may crack, but the tongue itself does not crack as in *typhoid*. The temperature of the body reaches 104° to 105° Fahr. at the end of the first week, and in favourable cases begins to decline about the fourteenth day. There is also frequently a slight diminution of temperature about the seventh day; and in favourable cases, although the temperature may again rise, it does not rise to the point it attained previously. The pulse ranges during the attack from 110 to 120. On the fourth or fifth day the characteristic rash of typhus appears, probably first on the wrists, then on the bowels and chest. The rash somewhat resembles measles, but soon assumes a darker hue, which has caused it to be termed the 'mulberry rash.' It presents as irregular spots varying in diameter, from three or four lines to a mere speck; being very different from the more defined pink or rose-coloured eruption of typhoid. Unfavourable symptoms, as in typhoid fever, are extreme prostration, low muttering delirium, picking at the bed clothes, bleeding from the bowels or nose, starting of the limbs, and insensibility. The average duration of typhus fever is fourteen or fifteen days, when the patient begins to recover, or the bad symptoms as above noted precede a fatal termination, which may not occur till the twentieth day. When recovery takes place the subsidence of the fever is often very marked and rapid; the temperature sometimes falling as much as four degrees in a night. During the progress of typhus there is a peculiar odour from the skin, which has been compared to rotten straw. Deafness, when occurring, is regarded as a favourable symptom. The mortality from typhus fever is one in five, of those attacked.

The cause of typhus is considered to be a specific poison emanating from the bodies of persons affected, or which may be generated when human beings are overcrowded in ill-ventilated dwellings (*vide* p. 602). Squalor, filth, and deterioration of constitution from poor diet are also favourable to its development. When typhus fever exists, the disease is communicable, and may be contracted by other persons.

Treatment.—As regards ventilation, good nursing, cleanliness, and quiet, and with respect to disinfection (*vide* p. 605), the remarks under *Typhoid* are applicable. Similar medicines should also be given for the moderation of the fever. The diet should at first consist of fluids, as milk and broths; but as there is no injury in the bowels in this disease, so much care under this head is not necessary for so long a period as advised under *Typhoid.* Brandy or wine will probably be required after the first week. On the cessation of the fever and the approach of convalescence, tonics should be given, as quinine (Recipe 18), or if obtainable nitric acid (Recipe 24).

The principal distinctions between typhus and typhoid fever are shown below :—

TYPHUS.	TYPHOID.
Origin connected with overcrowding.	Origin connected with defective conservancy.
Occurs at all ages.	Chiefly attacks young people.
Onset more rapid than typhoid.	Very gradual and insidious at the onset.
Face flushed or dusky, with heavy, stupid expression.	Face pale with pink flush on cheeks, and without the heavy, stupid expression.
Eyes suffused and watery.	Eyes bright and clear.
Degree of fever varies little, if at all.	Fever higher in the evenings, and less in the mornings.
Eruption dusky, mulberry coloured, of irregular form, spots not elevated except at first. The skin appears mottled.	Eruption rose or pink coloured, regular, defined, spots elevated. Skin does not appear mottled.
No diarrhœa.	Diarrhœa with yellow stools.
No pain of bowels.	Pain of bowels constant.
Tongue furred and *fur* cracked.	Tongue furred and *tongue* cracked.
Odour like rotten straw.	Not present.
Belly soft.	Belly drum-like.

FEVER, RELAPSING.—Relapsing fever, formerly unknown in India, has now been distinctly recognised in that country. Relapsing fever, from the peculiarities of its course, has been called *short fever*, *five-day fever*, and *seven-day fever*. It is also known as *famine fever*. Relapsing fever commences with feelings of chilliness, frontal headache, pain in the back and limbs, and prostration of strength. These symptoms may last from one to several hours, when the skin becomes suddenly hot and dry, with increase of headache, of pain of back and limbs, and with thirst. On the second or third day sweating may occur, but without relief to the symptoms. The temperature of the skin ranges from 104° to 108° Fahr., and the pulse from 110 to 120 beats per minute. There is no eruption of the skin, but jaundice is often a prominent symptom, sometimes occurring suddenly, sometimes gradually. At first the tongue is moist with yellow fur, then becoming dry and brown in the centre. The bowels are generally constipated, and there is often pain, tenderness, and enlargement about the liver and spleen. Severe shooting pains are felt both in the limbs and in the head, but delirium is rare.

From the fifth to the seventh day there is an abrupt cessation of all the symptoms, generally accompanied by copious perspiration, and occasionally attended with diarrhœa, or bleeding from the nose or bowels. The febrile symptoms are then absent completely for a few days, the tongue becomes clean, the appetite returns, and the patient may declare himself quite well. He may even go about and gain strength, but after six or seven days, during which period the pulse is often slower than natural, there is a sudden return of all the symptoms. The relapse lasts from three to five days, when the fever again abruptly declines. Sometimes a second or even a third relapse occurs. A peculiar microscopical living animalcule, which has been named, after the discoverer, *Spirillum Obermeieri*, is often found in the blood and saliva of persons affected with this type of fever. This worm appears in the form of thin threads, showing cork-screw-like movements. They are usually only found in the blood, during the height of the fever, disappearing when the fever declines. It is stated there is no recognisable difference between this spirillum and a worm known as the *Spirillum plicatile*, which has been found in water. Spirillum in the blood cannot be regarded, however, as confined to, or as altogether distinctive of, relapsing fever, as it is believed similar appearances may be detected during the course of other fevers.

Starvation and destitution are the two conditions chiefly tending to produce this disease. But, like other fevers, it is aggravated by overcrowding, want of ventilation, and all unsanitary conditions. When once originated, it is communicable to persons who have not been subjected to want of food, and must therefore be regarded as contagious.

Treatment.—The best treatment consists in placing the patient in a well-ventilated room, in promoting cleanliness, and in giving milk and other nourishing diet, such as described in the *paras.* on typhoid and typhus fevers. At the commencement of the attack the bowels, if constipated, should be acted upon by a purgative (Recipes 1 and 2), the skin should be daily sponged with tepid water, but only one part of the body at one time, so as not to cause chill. If there is much prostration with feeble pulse, stimulants will be necessary. During convalescence, mineral acids or quinine (Recipes 17, 20, or 24) should be given. For some time after the fever ceases the patient requires a generous diet.

FEVER, INTERMITTENT, or AGUE.—Of Intermittent Fever there are three principal varieties, viz.:—

The *Quotidian*, or daily ague, coming on every day; usually in the morning. The *Tertian*, or third day ague, with interval of one clear day; usually coming on about noon. The *Quartan*, or fourth day ague, leaving an interval of two clear days; usually commencing in the afternoon.

Of all varieties, that which returns every day is, perhaps, the most common. But this regularity is not always strictly observed, neither are the cold, hot, or sweating stages, described at page 206, always present as in a typical case. Hence there are *irregular* or *masked* agues, which cannot be classed under any particular form as given above. But in all varieties of ague in well-marked cases the symptoms of an attack are similar, and are divisible into the cold, hot, and sweating stages.

Causes.—Intermittent and Remittent Fever are both marked by paroxysms of accession of fever followed by a decline of the symptoms, although in *Remittent Fever* (*vide* p. 211) the period or interval between the attacks is not so strongly defined by the appearance of returning health. Both kinds of fever are attributed to the poisonous action of MALARIA in the system. Malaria, however, has not yet been isolated as a distinct poison by the chemist. But from various diseases (the chief of which are intermittent and remittent fevers) showing a tendency to *periodicity*, or to renewed force or decline at fixed periods, being found to prevail in certain localities, it has been reasoned that a poisonous emanation must exist in such localities, to which the term 'malaria' has been applied. Thus, judging from its effects (viz. the prevalence of paroxysmal fevers), malaria is mostly produced near the marshy banks of rivers; in the dense jungle usually found at the base of mountain ranges; on lands subjected to periodical inundation, or to too profuse irrigation; in dense jungles and ravines; near marshes either of salt or fresh water; also in arid, sandy, barren districts with a moist subsoil. The idea, that malaria is due altogether to decaying vegetables, is a mistake. It is due to the drying of earth, either temporarily or permanently saturated with water. Thus those places, temporarily so saturated, may become healthy at some periods of the year, while other localities, having a substratum of permanently moist subsoil, or impervious rock, are always drying, and are therefore always more or less unhealthy. Still, reasoning on observation of the effects produced by malaria, the following deductions are those generally accepted, as characteristic of the poison. It exists in greatest abundance immediately after the monsoons, when the hot September and October sun dries the saturated ground. It may be presumed to be an invisible vapour floating in the atmosphere, but as persons are more liable to contract fever when sleeping or residing on the surface of the ground, instead of at some little elevation above the surface, malaria is supposed to be somewhat heavier than atmospheric air. Again, it is reasoned, that malaria is most powerful during the hours of night, or when a person sleeps, from the fact that malarious disease so often follows exposure at such times. That it may be conveyed from place to place by the wind, appears evident from fever often occurring to persons sleeping to leeward of a marshy or malarious locality; which position necessitates breathing an atmosphere recently passing over the marsh, while persons living or sleeping to windward do so with impunity. Similarly, it would appear, that trees have the property of either destroying, or interfering with the progress of malaria through the air. A belt of trees, intervening between a pestilential marsh and a city, often affords protection to the inhabitants; and this fact has been sometimes taken advantage of by planting trees between marshy localities and human dwellings. Lastly, malaria is thought to be destroyed by fire, and it is therefore well to keep large camp fires burning when camping in malarious neighbourhoods.

It must not, however, be supposed, that the subtle influence called malaria will only arise from the open surface of the ground. There is every reason for the statement that dampness in the interior of houses, or foul drains passing through, under, or near houses, will give rise to that condition of atmosphere producing various forms of malarious disease.

Sufficient malaria having been taken into the system by the lungs, or, as many believe, through the medium of bad drinking-water holding malaria in solution, intermittent or remittent fever is the most usual result; the nature of the disease being probably determined by the amount of poison received into the system, and by the strength or state of health of the person; the worst variety, or remittent fever, following the largest dose of malaria. It is, indeed, an established fact that malaria may be so virulent and active, or may be received into the system in so concentrated a form, as to kill the person in a few hours by the production of a condition resembling *collapse* (*vide* p. 454), and without the ordinary manifestations of malarious fever. On the other hand, the dose of malaria may be so small as to induce only the condition presently described as *masked malarious fever*, or even only simple headache, or *malaise*, or an attack of diarrhœa. In other instances it may excite dysentery. Probably the condition of the system at the time of the reception of the poison will aid in determining the character of the resulting disease. A robust, healthy person would be liable to suffer less from the same amount of malaria, than another addicted to intemperance, or otherwise suffering from debility, or from scorbutic taint, or from a condition below *par* arising from any other cause.

The human system having been once subjected to the poison of malaria, the peculiar diseases consequent thereon may be again and again *re-excited* by various causes without fresh exposure to the primary cause, malaria. After convalescence, a peculiar condition or habit of body remains for months, or even for years, in which ague may be again excited by such apparently trivial agencies as cold, errors of diet, wet clothing, damp feet, or exposure to solar influence. Europeans who have returned to a temperate climate from the tropics, may remain free from intermittent fever for months, and suddenly, after some imprudence or exposure, experience a fresh attack. That poison remains dormant in the blood for an indefinite period, is frequently illustrated by such diseases as venereal, and hydrophobia. The material known as malarious poison, once in the blood, appears to increase, probably by a process of growth, of which the multiplication of yeast, or other fermenting matter in liquids, will perhaps afford the best idea. And it would seem, that when an increase to a certain extent has taken place, such agencies as cold, or errors of diet, act as exciting causes of a fresh manifestation of the presence of the poison. So frequently, indeed, do attacks of ague follow cold and chill, that the idea has been advanced that 'chill' alone is sufficient to cause such malady, and that so-called 'malarious influences' are, in reality, simply atmospheric vicissitudes.

Symptoms.—The symptoms of intermittent fever or ague are languor, debility, restlessness, yawning, stretching, and a sense of oppression about the stomach. In other instances, there is uneasiness or pain in some particular part, as the legs, back, or loins; or there may be burning of the eyes, or of the palms of the hands, or beating or other noises in the ears, or simply headache. Then a chilly sensation is felt all over the body, especially along the course of the spine, the features shrink, the fingers become white and shrivelled, and the skin generally rough. This rough state of the skin is recognised as 'goose skin' or *cutis anserina*, from a more than fancied resemblance to the skin of a plucked goose. This cold feeling is soon after followed by violent shivering and chattering of the teeth. Sometimes the cold stage, or even the shivering attack, comes on without any premonitory symptoms as above referred to. With the shivering, the lips, ears, and nose become bluish in colour, the breathing quick, and the pulse more frequent, while the tongue is white and dry, and severe pains are often felt in the back, loins, and limbs. Towards the end of this cold stage the inner parts appear to burn, while the outer parts freeze. Then, after a very variable time, from a few minutes to several hours, the shiverings and cold sensations gradually become less, and the second or hot stage commences. Flushes of heat are first felt about the neck and face, soon to be followed by burning heat of the whole body. The face becomes red and flushed, the pulse quicker and strong, the temples throb, and the patient is very restless and irritable. Both during the cold and hot stage, there are usually frequent calls to make water, which is passed in increased quantities, but of an acid, irritating, or scalding character. At length the sweating stage commences, by moisture first felt on the face and neck, and soon extending to the whole surface. The pulse now lowers to the natural standard, a feeling of comfort is experienced, and the patient begins to feel in his usual health, although often remaining weak and 'shaky' after the attack. The average duration of a typical attack of ague, such as is here described, is about six hours. But it may terminate much more rapidly, or be very greatly prolonged. Convalescence is marked by scanty, high-coloured, alkaline urine.

The increase of bodily temperature during an attack of ague, as tested by the clinical thermometer, is from the natural standard of 98·4° to 105° or 106° Fahr. In ague the temperature begins to rise several hours *before* the paroxysm sets in, so that, although the patient feels cold, the temperature of his blood is really above the normal figure. It is also proved that for some days *after* the disease appears to have departed a periodic increase of temperature may be detected, and so long as this continues the patient is not really cured.

Although the above symptoms are always present in a typical case of ague, it very often happens, especially after repeated attacks of ague, that the cold stage is not present, or very slightly so, heat of skin coming on without the prior shivering. And the case may be complicated by affections of internal organs, particularly of the spleen and liver, which will be evidenced by pain or uneasiness in the parts, and by the other symptoms described under *Liver* and *Spleen Disease.* In many cases the head is affected, and there is, especially during the hot stage, considerable delirium, the patient talking at random, and occasionally failing to recognise his friends. In other instances the stomach is chiefly affected, and there is obstinate and continued vomiting, neither medicine nor food being retained.

The period intervening between one attack of ague and another is called the *intermission*, and if these *intermissions* are complete—that is, if the usual health is apparently resumed—the disease is called *Intermittent* Fever in contradistinction to *Remittent* Fever, in which affection, as will afterwards be seen, there is no perfect intermission of symptoms. When ague occurs to children, it has always a greater tendency to assume the *remittent* type than in adults. Instead of seeming apparently well, children are feverish, restless, and poorly, all through the intermission.

Treatment.—The great object is to shorten the cold and hot stages. The patient should be at once put to bed, covered with blankets, and have hot bricks or hot-water bottles put to the feet. He should drink freely of hot tea or *congee*, or cold water, if more agreeable. A pan containing hot ashes placed under the bed is a useful means of promoting warmth. Emetics are sometimes desirable in the first stage of ague. When there is nausea and inclination to vomit, and when the attack has come on shortly after a meal, a mustard and water emetic (Recipe 77) may be given with great advantage. But the practice of administering either purgatives or emetics in every case is objectionable. Their operation disturbs and inconveniences the patient, and may expose him to cold at the critical periods of the passage of one stage into another.

In the second, or hot stage, the patient should be encouraged to drink freely of cold water (which is one of the best means of promoting perspiration), the body may be sponged with tepid water, and vinegar and water, or cold lotion (Recipe 83), may be applied to the head. Small doses of citrate of magnesia (*vide* p. 14) may also be given, which will tend to promote perspiration and to allay the irritability of the stomach.

When the patient begins to perspire, if not profusely, the perspiration should be encouraged by still keeping the body well covered, and by giving tea, or, if preferred, cold water. If weakness is complained of, a little wine, or brandy and water, will be desirable. Great care should be taken that the patient does not get chilled when he changes his clothes after perspiration.

It is, however, during the intervals between the paroxysms that the curative treatment must be employed. If the bowels are not in good order, if the tongue is furred and the liver inactive, a purgative, as Recipes 1 and 2, should be taken. Then quinine should be administered, either with sherry wine, as Recipe 17, or by itself in water and lime juice to the extent of five, six, eight, or even ten grains every three hours during the intermission, or until singing of the ears, or noises in the head, or perhaps partial deafness, occurs as an effect of the quinine, when it should be at once stopped. But in some constitutions, or in malarious districts, it may be necessary to give more quinine than the quantities mentioned. 'Experienced hands in ague do not think of measuring or weighing the dose (of quinine) at all, but unhesitatingly take from their bottle, always with them, a flat teaspoonful of quinine powder, which probably contains about twenty grains.' If this treatment is adopted, the next paroxysm may be either altogether stopped, or checked in violence. Those subject to ague, and who are well aware of the premonitory symptoms they usually experience, may often prevent an attack by an early recourse to quinine, and by attention to the state of the bowels. A generous, but easily-digestible diet, is desirable for those suffering from recurring ague, or when living in a malarious locality. The most likely time for a relapse is a lunar month from the date of the first attack, and preparatory to this, the system should be again brought under the influence of quinine.

[But quinine is not always successful, and when this occurs the fever may probably be re-excited by some disordered condition of the liver and bowels. In such cases it will be desirable to give a laxative, as five grains of blue pill every night, and the draught, Recipe 2, every morning, until the motions are of the natural colour; also to alkalise the blood by effervescing draughts (Recipe 56). After two days of such treatment quinine may again be used with greater probability of success.

There are numerous other remedies reputed effective in ague. Thus the 'cinchona febrifuge,' or 'cinchona alkaloids' (*vide* p. 20) may be successfully substituted for quinine in many cases of fever. Arsenic is the next best approved anti-periodic, and quinine failing, or in cases when quinine cannot be taken in consequence of some peculiar constitutional idiosyncrasy (*vide* p. 8), the liquor arsenitis potassæ (Recipe 27) may be administered in five-minim doses. *Strong* nitric acid in eight- or ten-drop doses is also often beneficial. The acid should be freshly dropped into a wine-glass half full of water, and the mixture taken immediately. If allowed to stand, the acid does not exert the same effect. *Narcotine* in five-grain doses is also often a good substitute for quinine.

In cases of obstinate recurrent intermittent fever, it will be desirable to try 'Warburg's Tincture,' which has often been successful, after other medicines have failed, although not unfrequently failing itself. This preparation is composed of various aromatic substances digested in spirit with aloes, chalk, and quinine. The following are the directions for the use of this medicine:—Prior to the administering of the tincture it is necessary for the successful action of the medicine that constipation of the bowels, if present, be removed by a dose of castor oil or other form of aperient. For an adult one-half of the quantity contained in the phial should be given unmixed and undiluted, a little before or at the first appearance of the next returning paroxysm of an intermittent fever; the other half, also unmixed and undiluted, after a lapse of three hours. During the interval between the first and second doses, and also for a full hour after the second dose, the patient must abstain entirely from food and drink. Immediately after taking the first dose, the patient should retire to bed. The perspiration induced by the tincture should on no account be checked, but sustained and promoted, as far as possible, by quietness in bed, additional warmth of covering, and avoidance of cold air. In severe cases, where prompt action is particularly indicated, the tincture may be taken at any stage of the fever, without the previous use of purgative medicine; but the bowels should always be opened as soon afterwards as circumstances will admit.]

When, during the progress of intermittent, the liver, spleen, or lungs becomes affected, the treatment must be that detailed for such ailments in combination with the quinine treatment for the cure of the ague.

FEVER, REMITTENT.—Remittent has been called *Jungle Fever*, *Teraì Fever*, *Bengal Fever*, &c., from the locality in which it originated, but the symptoms of all these so-called local fevers are essentially the same, and are comprised in the term Remittent.

The causes of *Remittent* fever are the same as those of intermittent, and have been already detailed.

Symptoms.—The accession of this disease may be sudden, but, as more frequently happens, weakness, lassitude, mental depression, headache, and general uneasiness exist for a day or two. This is succeeded by cold, shivering, pain and tension of the head, soreness of the eyeballs, aching of the back and limbs, nausea, bilious vomiting, or purging, and oppression, uneasiness, or pain at the pit of the stomach. The tongue is coated, the skin dry and hot, and the eyes appear dim. During this cold stage, although the person feels chilly, the temperature, as shown by the thermometer, is really above the healthy point.

This condition, which may be called the first stage of remittent fever, lasts but a short period, and is often, especially after several attacks, very feebly marked; but the second stage continues longer, frequently for eight hours, and is characterised by the pulse becoming quicker, by heavy breathing, with great restlessness and heat of surface; the temperature, as shown by the clinical thermometer, being often as high as 106° Fahr., and the pulse varying from 100 to 120. The countenance is flushed, and the eyes suffused, or 'bloodshot.' There is generally incoherence or delirium, and often yellowness of the whole body, which may come on suddenly, or more commonly, gradually. There is also sometimes great irritability of stomach, hiccup, and obstinate vomiting.

After a variable time, usually about six hours, but sometimes not till twelve hours have passed, the *remission* occurs, which is more or less complete, according to the severity of the disease. This is characterised by perspiration, reduced temperature, softer pulse, and sometimes refreshing sleep. But often the *remission* of the symptoms is very slight, and the condition marking the second stage recurs, perhaps without any prior feeling of cold. As a general rule, the *remission* occurs in the early morning, lasting till noon. In severe cases it may be difficult to distinguish the remission, but it should always be watched for. The continuance of the symptoms, without any prolonged or very decided interval of freedom from fever, constitutes the great distinction between an Intermittent and a Remittent. Also, the occurrence of a *remission*, although slight, is one of the features by which *Remittent* is distinguished from *Typhoid.*

The duration of a single paroxysm of remittent fever may be stated to average about twenty-four hours, but recurring paroxysms (unless cut short by medical treatment) generally tend to become of longer duration than the first. The duration of the disease by such recurring paroxysms is usually from ten to twelve days, but may be much longer, when either a favourable termination or death takes place. Favourable symptoms are distinct remissions, lowering of temperature and pulse, subsidence of gastric irritability, and copious perspiration. Unfavourable signs are, increasing weakness, the passage of blood by stool, cold sweat, delirium, insensibility, in short, the condition described at page 195 as the last stage of typhoid. If disease of any internal organ, as mentioned below, occurs, the illness is prolonged indefinitely.

During the progress of Remittent, affections of internal organs are very likely to present. The occurrence of great irritability of stomach and obstinate vomiting, especially during the hot stage, has already been enumerated among the ordinary symptoms. *This gastric disturbance is sometimes the most prominent and urgent symptom*, every article of food or medicine being rejected. Thus, persons with remittent fever, accompanied by disorder of the stomach, have often been erroneously regarded as suffering from *gastric* fever, the stomach derangement being really caused by the fever present (*vide Disorder of the Stomach*, p. 361). *Secondly*, from the effect on the brain, particularly during the cold stage, sudden fainting may take place, probably after the patient has been imprudently raised into an erect posture, which should therefore be *carefully avoided. Thirdly*, there may be irritation, or even inflammation of the brain or its investing membranes, characterised by great heat of scalp, delirium, and injection or redness of the whites of the eyes, which condition may gradually pass into complete insensibility or stupor. *Fourthly*, bronchitis or inflammation of the lungs may occur, when symptoms may present as detailed under the headings of these maladies. But sometimes, during the progress of remittent fever, chest affections arise very insidiously; the symptoms, masked by the fever, not being prominent; and therefore, unless attention is directed to this probability, much mischief may occur before the complication is recognised (*vide* p. 88). Chest affections, it may be noted, are very liable to supervene on remittent fever, occurring to Natives, especially in the cold season, of the northern districts of India. *Fifthly*, congestion or inflammation of the liver may occur, known by pains and other signs distinctive of these maladies (*vide* pp. 275, 276). *Sixthly*, the spleen may be chiefly implicated (*vide Spleen Disease*, p. 359). *Seventhly*, remittent fever and delirium tremens are not unfrequently combined (*vide* p. 135). *Eighthly*, diarrhœa may prevail. *Ninthly*, dysentery may come on. *Tenthly*, the attack may be marked by great debility, and tendency to the typhoid condition, from the first.

Treatment.—In ordinary cases, when no affection of internal organs is evident, a purgative, as Recipe 1, followed after three hours by Recipe 2, should be given daily, until the stools are of a healthy yellow colour and free from all lumpy material. Citrate of magnesia draughts (*vide* p. 14) should also be given two or three times daily. Headache may be relieved by a few leeches to the temples or behind the ears, or, if not so severe, by cold lotions (Recipe 83). Immediately on the first sign of remission, or when moisture of the skin presents, fifteen grains of quinine with, if available, half a tea-spoonful of lemon juice, should be given dissolved in two ounces of water. Quinine in six-grain doses should be administered afterwards every three hours until recurrence of heat and dryness of the skin, when the quinine should be stopped; or until two days have been passed without fever, when the quantity of quinine should be gradually reduced, the more rapidly if singing or noise in the ears or deafness occurs. If the fever returns after the first remission, and after the first doses of quinine have been taken, citrate of magnesia draughts, and laxatives, if required, should be again given, quinine being a second, or third, or fourth time resorted to, on return of moisture of the skin and diminution of febrile symptoms.

Some practitioners do not wait for the remission of the fever to give quinine, as here recommended. But this plan is one which should, in the writer's opinion, only be followed under direct medical supervision. In the absence of such superintendence, the safer plan will be to wait for abatement of febrile symptoms before administering quinine, as the medicine is powerless to arrest a paroxysm after it has commenced. If, in consequence of the gastric irritability, quinine cannot be retained on the stomach, it should be given in twenty-grain doses, in an injection of beef-tea. Distressing vomiting may be sometimes relieved by sucking ice. Quarter-grain doses of ipecacuanha given every two hours may also be tried for the same purpose. A pad of lint soaked with chloroform, laid on the pit of the stomach, and covered with oil silk, is also often beneficial. Mustard poultices may also be tried, in the same position.

In cases where either the bowels, chest, liver, or spleen are affected, the same plan must be pursued for the cure of the fever. But *when the symptoms point to affection of the brain*, quinine should *not* be given, excepting under medical advice. Affections of various organs supervening during remittent fever must be further treated generally as mentioned under the different headings.

During the whole progress of the malady good nourishing diet, in the shape of animal broths or jellies, and farinaceous puddings and gruels, should be given. If great debility occurs, or if fainting feelings are experienced, or if the tongue becomes dry and brown, with weak quick pulse, perhaps also accompanied by muttering delirium, stimulants at regular intervals will be urgently demanded, and which should be given in the quantities, but *subject to the same rules*, as mentioned at page 197 under the treatment of *typhoid*. When great debility occurs the patient should not be permitted to sit up, or even to raise himself in bed.

[When from irritability of the stomach quinine is not retained, twelve drops of strong nitric acid in an ounce of water should be given instead, until the sickness of stomach subsides. Or quinine may in such cases be injected beneath the skin; but this operation requires a peculiar instrument and special skill. When, as may sometimes be the case, the purgative medicines recommended do not unload the bowels and liver, producing healthy stools, a mercurial dose, as Recipe 8, should be given. These means failing, 'Warburg's tincture' may be tried (*vide* p. 210), or the cold bath, or packing (*vide* p. 198), may be desirable.]

Typhoid fever being the disease with which remittent fever is most usually confused, the chief distinctive points are given below :—

TYPHOID.	REMITTENT.
Origin connected with defective conservancy.	Origin connected with exposure to malaria.
Usually diarrhœa from the first, with yellow stools.	Constipation at first, or dark bilious stools.
Tenderness and pain of bowels.	None.
Eruption of rose or pink-coloured spots.	None.
No decided remission of fever.	Daily remissions, generally occurring in the early morning.
Jaundice, or yellowness of the skin, very seldom occurs.	Often occurs.
Gastric symptoms, as nausea, hiccup, and vomiting occasional.	Gastric symptoms nearly always present.

FEVER, REMITTENT, OF INFANTS.—Infants and children are very subject to fever of the remitting description, although not always arising from malaria. The main symptoms are much the same as those described above, the malady being marked by *incomplete* cessation of the febrile state. This incomplete cessation or remission of the fever of infants is generally most marked in the early morning, while the aggravation of the symptoms is most developed towards the evening and in the early part of the night. In remittent fever of children there is always a tendency to wandering of the mind, or to convulsions, and actual delirium or stupor often occurs, the latter accompanied by much restlessness, and probably moaning. Remittent fever in children may occur from a number of causes, of which malaria, the irritation of teething, worms, improper diet, and collection of fæcal matter in the bowels, prolonged diarrhœa, lung affections, and disordered stomach, are the chief. In perhaps the majority of cases of remittent fever occurring to children the malady is not caused by malaria, but arises from one of the other reasons named. Remittent in children can therefore only be correctly treated by first ascertaining the cause, and then using the remedies recommended for such a condition.

FEVER, MASKED MALARIOUS.—The condition thus known is the result of the presence of malaria in the system, in a minor degree, acting upon a feeble or irritable constitution. It consists of very slight febrile excitement, which may be intermittent or remittent. It is often present in delicate females, and is frequently found associated with a scorbutic state of the system.

The individual thus affected complains chiefly of heat, dryness, and burning in the palms of the hands, less frequently in the soles of the feet, and he may be annoyed by occasional periodic beating or singing in the ear. There is more or less general uneasiness, perhaps slight headache, and depression of spirits, but no decided pain anywhere. The pulse is not excited, the skin, excepting in the palms, does not feel warm to the touch; but the application of the clinical thermometer will show that the temperature is higher than natural. The appetite probably remains good, but the sleep is restless. The burning of the palms may be persistent with slight remissions, when the parts become a little moist; or there may be distinct intermissions. This condition may prevail for months or even years, and is oftentimes so slight as scarcely to attract much attention. But in other instances it constitutes a perpetual source of annoyance and discomfort. Persons so affected are not especially prone to attacks of fully developed fever. They appear often to escape the latter, by the malaria expending itself in the constant induction of the masked form. But they are very liable to affections of the spleen, terminating in enlargement of that organ, and they generally become debilitated or *anœmic* (*vide* p. 50), losing their colour, presenting a sallow appearance, suffering from diarrhœa or eczematous eruptions of the skin (*vide* p. 343), from depression of spirits, from indigestion, and from palpitation. To this condition the term *malarious cachexia* is often applied.

A condition somewhat resembling masked malarious fever sometimes arises from saturation of the system with quinine or arsenic, given for the cure of fevers. The blood may be said to be poisoned by these agents; which, although necessary to cure fevers, are known to be capable of exciting a febrile condition. When, therefore, masked malarious fever occurs to persons who have taken much quinine, the possibility of this being the cause should not be forgotten.

Treatment.—This ordinarily consists in the use of quinine (Recipe 17) or other tonics and in attention to the general health. A liberal diet and a moderate amount of wine or beer should be taken, with coffee at least once a day. Change of climate is, however, often the only remedy.

[The other tonics referred to above are iron and arsenic (Recipes 20 and 27). But if it should appear that a continued use of quinine or arsenic has induced a febrile state, mild purgative and diuretic medicines should be administered (Recipes 9, 2, and 73), with the view of eliminating such excitants from the system. If the patient is not too debilitated, the Turkish bath may also be used for the same purpose.]

FEVER, MALARIOUS, INFLUENCE OF THE MOON ON.—It is a very general impression that the moon exerts an influence on fevers, and that these diseases are more prevalent and more likely to recur at the lunar changes than at other periods. Statistics, however, do not confirm such impressions; but, nevertheless, the idea is very general, and has persisted from early periods of history. Persons subject to fever will often assert their malady returns at the new and full moons, with greater regularity than at other periods; or if the fever does not recur, they feel uncomfortable, and suffer from various anomalous and ill-defined sensations, evidencing some deviation from health. That the moon *per se* exerts such influence may well be questioned. But at the lunar phases there are undoubtedly atmospheric changes which may affect the more sensitive constitutions of those disposed to disease. Thus the barometer suffers a depression of about the tenth of an inch at the new and full moon; while there may be other more subtle influences at work, with which we are unacquainted. If, as seems well established, the moon's attraction is the chief cause of the oceanic tides, it certainly appears not unreasonable to suppose that such power must in some way influence the less dense fluid of the atmosphere, as regards change of temperature, or moisture, or force and direction of winds, or as regards the forces of light, electricity, and magnetism. In the description of intermittent fever it has been noted what apparently slight causes (errors of diet, cold, mental emotions, &c.) will induce a return of fever in those who have once suffered from the complaint, and the atmospheric changes consequent on the lunar phases would seem to be sufficiently powerful to induce a similar result. However this may be, the practical application of the present knowledge of the matter results in the desirability of those subject to fever taking precautionary measures, such as a dose of quinine, and avoidance of exposure, just previous to the changes of the moon.

It may be remarked that several other maladies have been attributed to the influence of the moon, the principal of which are MOON BLINDNESS and MOON PARALYSIS. After persons have slept in the rays of the moon it has often occurred that they have found themselves unable to move the face properly, or an arm or a leg, or unable to see. But the loss of power thus occurring is not true paralysis. It is a species of rheumatism (*vide Facial Paralysis*, p. 295), and it will be found the person is able to move the limb affected, but refrains from doing so in consequence of the attendant pain. Neither is the affection consequent on the moon's rays, but it arises from chill or cold. The malady should be treated as rheumatism, with hot baths, stimulating liniments, and colchicum mixture (Recipe 72).

MOON BLINDNESS, on the other hand, does arise from the rays of the moon. The *retina* or expansion of the nerve of the eye becomes paralysed from lengthened exposure to a brilliant moonlight, even although the eyes are covered by the lids. Just as sometimes occurs to men working in front of a blazing furnace, as in iron and some other manufactures, or to arctic voyagers from the glare of the snow. Sometimes there is total blindness both by day and night, or the loss of vision may be only partial. The treatment will generally require leeches, blisters behind the ears, purgative medicines, and confinement in a darkened room.

FEVER, MILK.—Commonly called *Weird.* This is a febrile condition, frequently attending the secretion of milk after childbirth. In ordinary cases, the milk flows about twenty-four hours after delivery; but the patient may, especially if exposed to chill, suffer from shivering, heat of skin, quick pulse, with pain and soreness of one or both breasts, the appearance of the milk being delayed. Fever occurring under such circumstances is sometimes also accompanied by an eruption of small vesicles on the body, which are attended by a distressing prickling or itching, and profuse perspiration. This condition is called *miliary fever*, and sometimes occurs independently of any disorder of the milk or breasts. It is favoured by too warm beds or too warm rooms. In such cases ventilation should be attended to, the bowels should be well opened by castor oil, cold or chill guarded against, and, if necessary, hot fomentations applied to the breasts. If the latter organs become swollen, knotty, and hard, they should be gently rubbed with salad oil, and the infant should be put frequently to the breast. If matter forms, it must be treated as mentioned under *Abscess of the Breast* (*vide* p. 83).

FEVER, PUERPERAL.—This variety is a very dangerous kind of fever, sometimes, although fortunately not very commonly, occurring to women after confinements. The best authorities class puerperal fever with those of a typhoid character, and it appears to depend on poisoning of the blood from the absorption of putrid matter retained within the womb.

When a woman shortly after labour is seized with shivering, and this is followed by a hot and sweating stage with feelings of relief, when the breasts swell, and when the discharge or ‘cleansings’ are passing freely, there is nothing to apprehend. It is probably the *Milk Fever* or *Weird*, as described above. But when, after perspiration, no relief is experienced, when the breasts become flabby and smaller, when the discharges lessen or cease altogether, and when the pulse remains above 120 beats in the minute, there is great reason to fear puerperal fever. Such fear will become certainty if prostration of strength, difficulty of breathing, and suppression of the flow of milk come on. Pain and tenderness of the bowels are also very frequent and prominent symptoms; the tongue and breath are foul, the face sallow, and there is probably an irritating diarrhœa, marked by the passage of hard lumps of fæcal matter called *scybalæ*. Puerperal fever, when formed, is highly contagious, and may be carried by attendants from one lying-in woman to another.

Treatment.—The treatment of puerperal fever should be decisive and commenced early. The first thing necessary is to act on the bowels and on the skin, and for this purpose Recipe 1 should be given, followed after four hours by a purgative draught, Recipe 2. An injection composed of two ounces of castor oil and ten or twelve ounces of soap and water should also be given. Citrate of magnesia draughts (*vide* p. 14) should be taken every four hours. Injections of warm water should also be thrown up the private parts, which, acting as an internal fomentation, will frequently bring on a return of the discharge, with great relief to the patient. If there be pain and tenderness of the bowels, the abdomen should be covered with hot linseed-meal poultices (Recipe 80). Great attention should be paid to the ventilation of the room, and disinfectant agents should be freely used (*vide* p. 602).

FEVER, DENGUE.—In the greater number of cases the first symptoms of dengue fever are headache, restlessness, chilliness, debility, pains in the back, limbs, and joints, of a very severe character, with more or less general feverishness. Shortly afterwards, generally within twelve hours from the first feelings of uneasiness, an eruption of a red or scarlet character appears, lasting about forty-eight hours. During the fever the temperature of the body rises to 103° or 104° Fahrenheit, while the pulse ranges to 120 beats in the minute. But experience has proved that this rise of the animal heat of the body, and the increased frequency of pulse, only last during the limited first febrile state, and the condition is not ordinarily indicative of danger. As the rash disappears the fever lessens, and for two or three days there is generally an almost complete remission of febrile symptoms. Then, with an accession of fever a second eruption, more resembling that of measles, occurs. This may be so slight as to escape notice, or it may last a few hours, or persist for two days. Sometimes this second rash resembles 'nettle rash' rather than measles, and there is often intense itching. This second fever and second eruption often leave the patient much weakened and depressed, with rheumatic soreness, and stiffness and pains in the joints. Dengue fever prevails epidemically, and must be considered contagious. It attacks both adults and children—even infants—when the startings occasioned by the pain may be mistaken for convulsions. But the after-pains, so common and so distressing in grown-up people, fortunately seldom cause much trouble to infants and young children, who recover with great rapidity. Dengue fever, from the accompanying eruption, has been also called 'red fever.'

Treatment.—In the treatment of dengue it should be borne in mind that we are dealing with a specific fever, which, when once commenced, must run a certain course. There is, therefore, no rapid cure for this febrile affection; but much may be done to alleviate the symptoms as they arise. Attention should always be directed to the state of the bowels, and constipation, if present, should be relieved by Recipe 1, followed by Recipe 2. If there is much fever small doses of citrate of magnesia (*vide* p. 14) should be given; if there are sleeplessness and great pain in the limbs, but the head is *not* complained of, ten or twelve grains of Dover's powder, or twenty grains of chloral, may be given at night. If there is tendency to periodical returns of pain or feverishness, quinine, as Recipe 18, should be used. Warm baths in which a couple of pounds of common washing soda has been dissolved are also useful. For dengue in children, little treatment is required. A senna purgative (*vide* p. 28) and cooling draughts of citrate of magnesia will be advisable, and if the child is teething the gums should be lanced if hot, tender, tumid, and giving trouble.

[Tincture of belladonna in ten-minim doses has been stated to relieve the pain and to mitigate the fever. This may be procured and given three times a day in water. Or the colchicum mixture (Recipe 72) may be tried, if the belladonna tincture is not efficacious.]

FEVER, HECTIC.—Hectic fever is a consequence of profuse or of long-continued discharge from an abscess (*vide Abscess*, p. 46), or from the lungs, as in consumption (*vide* p. 120), or from *disease of the joints* (*vide* p. 268). Hectic fever does not fully declare itself as long as the matter is pent up; but after matter begins to flow profusely, or after it has continued to flow for some time in a less degree, hectic fever may be expected. In some conditions, as, for instance, when fluid collects in the chest (*vide Chronic Pleurisy*, p. 306), there may be manifestations of hectic; but until matter or fluid flows by an opening communicating with the outside of the body, there is commonly not fully developed hectic. The fever always commences towards evening, and declines in the early morning. Often the commencement of the attack is marked by shivering, or sensations of cold. Then the skin becomes hot and dry, while the eyes look brilliant, the cheeks flushed, and the pulse rises to 120 beats in the minute. The urine passed is turbid and offensive; the bowels are usually costive at first, but after repeated attacks diarrhœa generally prevails; the tongue presents a white fur in the centre, while the tip and edges are clean and red (*vide* p. 38). There is often considerable headache, restlessness, and a complaint of burning heat felt in the interior of the body. After a variable time, generally in the early morning, the skin becomes moist and the fever terminates in profuse sweating, often attended by great exhaustion. During the day the patient remains free from fever. The appetite often remains good, and is sometimes excessive. But periodical recurrences of hectic are always attended with failing strength and increasing emaciation; consequences, both of the fever and its termination in profuse perspiration, and of the discharge of matter causing the fever. As a rule, a hectic patient is easily depressed, and easily excited; his mind is buoyant and hopeful, and as soon as relieved from present distress he is sanguine of recovery. Hectic fever may continue for weeks or months, or as long as the exciting cause—the discharge of matter—persists. After a variable period, diarrhœa usually occurs, and this must be regarded as an unfavourable sign, as it adds much to the debility of the sufferer.

Treatment.—This consists in a liberal diet, meat, chicken, game, broths, soups, jellies, being given to as free an extent as the digestion of the patient will allow. A small quantity of port wine will also be generally advisable, but it should not be used towards evening, as it may add to the febrile excitement. The best time for the stimulant will probably be at the period of exhaustion, consequent on the termination of the fever in the characteristic debilitating perspiration. Broth, soups, and jellies may also be *offered* at this time, but should not be forced on the patient, whose appetite will probably return later in the day. As medicine, cod-liver oil, iron, and quinine, either in combination, or alone, will probably be required. Any discharge of matter should be as much as possible limited by suitable dressings of the part affected, and especially by the prevention of matter 'bagging' or collecting in sinuses or fistulæ (*vide* p. 48). If the strength permit, carriage exercise, or even walking exercise, short of fatigue, may be taken with advantage. But perhaps the most important point is placing the patient under good general sanitary, and individual hygienic conditions, avoiding all late hours and excitements; plenty of fresh air, especially in the sleeping room, coupled with avoidance of cold or chill.

[Perspiration may be usually lessened by acid mixture (Recipe 59) taken every two hours on the accession of the fever. Diarrhœa may be combated by Recipe 58, or, if this does not succeed, Recipe 62.]

FEVERS, ERUPTIVE. — *Vide* CHICKEN-POX, MEASLES, SCARLATINA, SMALL-POX, TYPHOID FEVER, DENGUE FEVER.

FISTULA.—This term is applied to any sore which burrows under the skin. A deep-seated abscess, having only a small opening through which the discharge passes, comes under the denomination *Fistula*, and, if extensive, is a condition with which *Hectic fever* (*vide* p. 223) is often associated. Fistula may occur in almost any part of the body, but the term is more popularly used with reference to fistula near the *anus*. This, technically termed *fistula-in-ano*, results from the formation of abscess. The cause of abscess forming near the anus is sometimes obscure. External injury, or internal injury, as from a swallowed fish-bone, or other foreign body sticking in the gut, may excite abscess. When matter forms in the neighbourhood of the anus it is characterised by throbbing pain and fever, and the parts should be fomented and treated as advised for *abscess* (*vide* p. 46). As matter forms, a swelling becomes apparent, and it usually points close to the orifice of the anus, and should be opened early with a lancet (*vide Abscess*, p. 48). Then the abscess may gradually cease discharging matter and heal, or otherwise a fistula remains. The treatment of nearly all kinds of fistula requires surgical operation.

FISSURE, or ULCER OF THE ANUS.—This consists of a crack, or ulcer of variable extent, situated at the junction of the skin with the gut, and extending inwards. The causes are habitual constipation, and the passage of large hardened stools. Scratching the part, in consequence of some local irritation, sometimes originates fissure. It is also very frequently associated with piles. The chief symptom is pain on going to stool, of a very acute character, often continuing for some hours. Often the fæces are streaked with blood; and if the fissure is deep and large, there may be considerable bleeding each time the bowel acts. There is also usually frequent spasm of the muscle round the orifice of the anus, accompanied by intense pain. The spasmodic pressure thus exerted by the muscle, gives the stools a flattened, or ribbon-like appearance. When such symptoms present, fissure, or ulcer, may always be suspected; but the fact cannot be undoubtedly ascertained, without examination. The treatment requires laxatives (Recipe 2) to soften the fæces and prevent straining at stool. Or injections of warm water may be administered for the same purpose. Nitrate of silver is the best local application; and in simple cases, if applied to the bottom of the fissure, previously well washed, often effects a cure. But when the fissure is deep, or large, a somewhat painful although slight surgical operation will be required.

FITS.—The term 'fit' is commonly used to signify almost any sudden attack, and particularly if attended with convulsions. Fits may be of four classes, viz.: Apoplectic, Epileptic, Hysterical, and Fainting. In all these there is, during the paroxysm, loss of consciousness, but in the hysteric fit it is least marked. An apoplectic fit may be known by the 'stertor' or peculiar noise attending the breathing, the puffing of the cheeks, the profound insensibility, and ordinarily the slow pulse, and the bloated appearance of the face, although in some varieties of apoplexy the face may be pale and the pulse feeble. Epilepsy is characterised by violent convulsive spasms and struggling, the face is frightfully contorted, there is foaming at the mouth, the jaws are firmly shut, the tongue is often bitten, and the arms are tossed about. In hysterical fits the countenance retains a natural expression, and there is usually screaming, sobbing, or laughing, and incomplete insensibility, so that the person avoids injuring herself in her struggles, and never bites her tongue. Further, an hysterical fit never occurs during sleep, which both apoplexy and epilepsy may do. Fainting or *syncope* is marked by paleness of the face, dilated pupils, feeble pulse, and there is neither the stertorous breathing of apoplexy, nor the convulsions of epilepsy, nor the laughing or screaming of hysterics.

In apoplexy the pupils of the eyes are usually contracted, but occasionally large, or one may be dilated and the other contracted. In hysteria they are of the natural size; in fainting they are always widely dilated; in epilepsy the whites of the eyes are frequently only visible. Apoplexy is most common in adult or advanced life. Epilepsy occurs at all ages. Hysteria is almost confined to the female sex, and to the ages between fourteen and forty. Fainting may occur at any age, but is most common in the young. For further description and treatment *vide Apoplexy*, *Epilepsy*, *Hysteria*, and *Syncope*, pp. 52, 174, 261, 188.

In addition to the above maladies so often spoken of as 'fits,' there is Drunkenness, or a 'Drunken fit' (*vide* p. 155); for which apoplexy may be mistaken, or *vice versâ*. The chief ordinary points of distinction are, that in drunkenness the pupils are equal in size, and on arousing the person, which may be done from the drunken fit (but not from apoplexy), he usually babbles incoherently. There is also the smell of liquor with the breath; but this sign may be fallacious, as some one, from mistaken kindness, may have given liquor to a person struck with apoplexy (*vide Apoplexy*, p. 54).

FLATULENCE.—Flatulence consists in an accumulation of gas in, and its discharge from, the stomach and bowels. The gas formed is generally sulphuretted hydrogen. It may cause pain, acid or nauseous eructations, vomiting, and even palpitation of the heart. It is an ordinary symptom of indigestion, and is frequent in hysterical women. Care in diet, and abstaining from those articles of food, after which most flatulence occurs, is more satisfactory treatment than by medicines. Thus sugar, pastry, starchy material, as rice, sago, and arrowroot, are not usually well digested by those subject to flatulence.

[Diet being primarily attended to, when flatulence is accompanied by pain or spasm in the bowels, twenty or thirty drops of sal volatile may be taken in a little water; or the same quantity of tincture of ginger; or three drops of oil of cajeput, on a piece of sugar, which is often very beneficial. When flatulence is accompanied by constipation, or pain, or uneasiness between the shoulders, a Seidlitz draught or Carlsbad water may be used. When flatulency occurs after meals, absorbent charcoal lozenges, or charcoal pills or powder may be taken, to the extent of five or ten grains. When attended with depression, constipation, sensation of weight in the stomach, and tendency to vomit, two-drop doses of ipecacuanha wine may be taken every two hours; a mode of treatment specially adopted to the flatulence of pregnant women. If there are white clay-coloured stools, podophyllin pills (Recipe 1) are required. When there is simply flatulence unattended by any of the additional symptoms named above, or only by acidity, a dose of magnesia will generally prove beneficial. Flatulence, however, can only be radically cured by considering it and by treating it as a symptom of dyspepsia.]

FLATULENCE OF INFANTS.—Flatulence or 'wind' in the stomach of infants most usually results either from food being unsuited to the child, in which case it should be changed; or from the child taking it too quickly, or in too large quantities, which should be guarded against. However the flatulence arises, it is frequently the cause of great suffering to the child, from the pain and spasm it occasions in the bowels. Infants thus affected scream violently, often stopping for a few moments suddenly, as though straining, and their legs are drawn up towards the bowels. The best means of relief is rubbing the child's belly gently with the palm of the hand, and a few grains of citrate of magnesia (*vide* p. 14) may be given. If this does not stop the pain in the course of ten or fifteen minutes, a drop or two of chlorodyne (*vide* p. 10) may be administered in a little water.

[A much better remedy, however, than either of the above is the magnesia and aniseed mixture given under Recipe 42, which for a child subject to flatulence should be procured from the chemist.]

FLUSHING OF THE FACE is a symptom of dyspepsia often met with, without much other disturbance of the health, and generally occurring after meals. It also frequently occurs to women about the 'change of life.' If any article of food is followed by such flushing, it should be avoided, and little, or no wine, or other fermented drinks, should be used. The bowels require to be maintained moderately open, and plenty of exercise should be taken in the fresh air.

[In some instances ten drops of dilute sulphuric acid in water three times a day is very serviceable. For the flushing of females at the 'change of life,' if attended with mental depression, bromide of potassium (Recipe 46) may be used: if attended with hysterical symptoms, weight in the head, and perspirations, tincture of nux vomica may be taken in two-drop doses, in a dessert-spoonful of water two or three times a day; for flushings with 'hot and cold perspirations,' nervousness, throbbing at the temples, and 'fluttering' at the heart, valerianate of zinc may be taken in two-grain doses three times a day.]

FUNGUS FOOT DISEASE.—This affection is very common in some parts of India, especially in the Western districts. It principally attacks Natives, and is supposed to arise from the entrance beneath the skin of some vegetable spore or germ. It is generally seen about the feet, but may occur in other parts of the body. Its first appearance is that of a swelling under the skin, in which may be seen a bluish or black appearance. After a variable time the skin bursts, and an open sore results, discharging pieces of a black substance with matter. The removal of the diseased part by surgical operation is the only means of cure.

GALL STONES.—Gall stones are small substances about the size of a pea, which sometimes form by the deposit in the gall-bladder of certain elements of the bile, present in too great redundancy. Their formation is much favoured by sedentary habits and over-indulgence in animal food. When formed, the flow of bile sometimes carries them into the short duct or tube leading from the gall-bladder into the intestines. The passage of a stone often occurs after a full meal, or after some muscular effort, and causes sudden attacks of excruciating pain, immediately to the right of the pit of the stomach, shooting to the back, with vomiting of sour bile, and occasionally sudden jaundice. From this pain there are intervals of comparative ease, and pressure will, to a certain extent, relieve it, the person throwing himself about the bed, or pressing his thighs on the belly to get relief from change of posture. This distinguishes the malady from inflammation, when pressure and motion are painful. If a small stone remains impacted in the duct, the flow of bile is prevented, but not altogether stopped, and jaundice comes on more slowly than when the stone, exactly fitting the tube, blocks the passage altogether.

Treatment.—If possible a hot bath should be given, or otherwise the painful part should be fomented with very hot water. If the attack comes on after a full meal, an emetic may be given (Recipe 77). Chloral should also be used to the extent of fifteen grains every three hours for three doses. If much sickness exists, the chloral should be given as an enema. If the bowels are costive, Recipes 1 and 2 should be administered as a purgative. At the end of an attack of the kind the fæces passed should be examined for gall stones, which may be detected by washing the stools through muslin, or through a sieve. Gall stones are brown or greenish-yellow in colour, are round or oval, or where several have been in the gall bladder rubbing together, they may present flattened facets. They vary in size, from that of a millet seed to that of a peppercorn, which in appearance they somewhat resemble. In exceptional cases they may be as large as a walnut. It is always desirable to ascertain with certainty whether gall stones have or have not been passed, because if a single stone comes away smooth and round, it may be assumed there are none left behind, and that the trouble is over. Persons subject to gall stones should always keep the bowels well open, for which Carlsbad or Hunyadi Janos waters may be recommended. If the bowels grow constipated, a gall stone may become the nucleus of an *obstruction of the bowels* (*vide* p. 69). Very plain living, no spirits or beer, and a fair amount of exercise, are the means of prevention.

GASTRIC DISEASES.—Gastric diseases are stomach complaints. The term *Gastric Fever*, in common use, conveys an erroneous idea of a fever of a special type, the fact being that it is nothing more than one or other of the varieties of fever already described, accompanied, as mentioned to be sometimes the case (*vide* pp. 196, 213), with great irritation of the stomach, causing pain and obstinate vomiting (*vide* also *Disorder of the Stomach*, p. 361).

GLANDS, ENLARGED.—There is a system of minute vessels spread over and through the body termed *absorbents*, and on their course are placed little bodies termed *Glands*. In health most of these glands are scarcely perceptible, but when enlarged they attract notice. The glands most liable to enlargement are as below.

ENLARGEMENT OF THE GLANDS OF THE NECK.—This often occurs in young persons, especially if of scrofulous habit, and is often spoken of by nurses, as the ‘glands of the ears down.’

They may enlarge, remain swollen for days, or even weeks, and then subside. But they sometimes inflame, gather and form matter, and cause an ugly sore, which leaves a disfiguring scar. When the swelling is not painful, and before *throbbing* indicates the formation of matter, cold lotion (Recipe 83) should be assiduously applied. If this does not *stay* the progress of the gathering, it should be *hastened* by poulticing, and when the matter points, the abscess should be opened with a sharp lancet, the puncture being made longitudinally, or in a line with the folds of the skin of the neck, by which a remarkable scar will be avoided. After matter has ceased to flow, the part should be dressed as an ordinary ulcer. Quinine and nourishing diet should always be given.

[If the enlargements are sluggish, and without throbbing pain, iodine paint should be applied daily, with a brush or feather, and cod liver oil may be given. If the patient is pale and feeble, citrate of iron and quinine (Recipe 21) should be taken. Previous to the formation of matter, sulphide of calcium is much recommended. Take of sulphide of calcium two grains, sugar of milk forty grams, to make twenty small pills or powders. For a child, three years old, one every four hours, dissolved in water; at six years old two powders. It may be taken in addition to the other remedies.]

The Glands of the Armpit may enlarge from similar causes, or as the result of some injury to the hand, or from cancer of the breast.

The Glands of the Groin may swell and gather from similar causes, or from venereal disease, forming bubo.

The treatment of the two latter descriptions of enlarged glands is the same locally as when the glands of the neck are affected. But general treatment must depend upon the diseases causing the enlargement.

Lastly, swelling of the *glands behind the jaw* not unfrequently occurs, forming *mumps* (*vide* p. 290).

GONORRHŒA.—Gonorrhœa arises from contagion, and consists of inflammation of the lining membrane of the urinary passage. It may occur in either the male or female. It commences, usually on the third day after exposure, with itching and redness of the urinary passage, accompanied by a thin whitish discharge. In two or three days there is swelling of the private parts, severe scalding, pain in making water, and a copious discharge of thick yellowish-coloured matter. The groins, thighs, and testicles ache and feel tender, and there is often, particularly during the night, partial hardness of the penis, known as *chordee.* The duration of simple gonorrhœa is from ten to twenty days.

But gonorrhœa frequently causes one or other of the affections enumerated below. *First,* in some cases the inflammation extends to the testicle, which swells and becomes painful, the discharges from the penis generally stop, and there is a dragging sensation in the groin (*vide* p. 383). *Secondly,* the bladder may become inflamed when the symptoms are as described under that head (*vide* p. 64). *Thirdly,* bubo may form as a result (*vide* p. 93). *Fourthly,* the conditions known as *phymosis* or *paraphymosis* may be excited (*vide* p. 297). *Fifthly,* inflammation of the end of the penis, called *balanitis,* may occur (*vide* p. 234). *Sixthly, gonorrhœal rheumatism* is another sequel (*vide* p. 235). *Seventhly,* gonorrhœal *warts* may grow (*vide* p. 235). *Lastly, gleet* may remain, and ultimately cause *stricture* (*vide* p. 235).

Treatment.—If the disease cannot be treated at the onset, as mentioned in small type below, it will be desirable to wait until the inflammatory and febrile symptoms have subsided before applying local or using specific remedies. The bowels should be kept freely open by sulphate of soda (Recipe 2), and citrate of magnesia draughts (*vide* p. 14) should be given. Pain may be relieved by hot hip-baths, by chloral, or by chlorodyne. If chordee occurs, the part should be immersed in cold water, and thirty drops of spirits of camphor (*vide* p. 25) may be taken in water. In all cases rest must be enjoined, the diet must be low, fermented liquors, spiced dishes, and coffee being avoided, and the part should be well supported and not allowed to hang down.

[As soon as the patient is free from febrile symptoms, in four or five days, he should take copaiba. The best preparation is copaiba prepared in a capsule, which may be swallowed like a pill, and the nauseous taste thus avoided; or he may take the preparation of the chemists known as *dragées copaibæ and cubebs*. But in some persons, copaiba induces an eruption like 'nettle-rash,' and if so, the dose must be lessened. A sulphate of zinc injection, as Recipe 98, should be used twice daily.

[If gonorrhœa in the male be detected at the first, when only a little itching or watery discharge is present, it may be often cut short by injecting, once every four hours, a solution of nitrate of silver, of the strength of two grains to eight ounces of water. This should be repeated six or eight times, desisting, however, sooner if the discharge is rendered bloody, or if pain is excited. The patient should take a gentle aperient, as Recipes 1 and 2, and avoid fermented liquors, spiced dishes, and coffee. After the aperient, he should also take one drop of tincture of nux vomica every hour, in a tea-spoonful of water. He should also lie down as much as possible, and the private part should be enveloped in a rag kept wet with a lotion (Recipe 84).]

Gonorrhœa in the female is marked by the same symptoms as in the male. There is heat, pain, and swelling of the parts, pain in making water, and in walking. For females, internal remedies are useless. For the first few days warm poppy-head water (*vide* p. 591) should be used daily, with the aid of a female syringe, as an injection; and afterwards alum injection (Recipe 100) should be made tepid, and injected frequently and freely in the same manner.

The treatment of the affections mentioned, as sometimes resulting from gonorrhœa, is as below:—

When the testicle becomes affected, injections, if being used, should be discontinued; the patient should lie in bed: and the treatment indicated at p. 384 should be adopted. When the bladder is inflamed the treatment should be that mentioned for inflammation of the bladder (p. 64), and injections, if being used, should be discontinued. The treatment of bubo, phymosis, and paraphymosis, is given at pp. 93 and 297. The condition called *balanitis*, mentioned as sometimes occurring, means an eruption on, and discharge from, the end or head of the penis, accompanied with much pain and swelling, for which frequent bathing and washing with warm soap and water, and the application of alum wash (Recipe 97) is the best treatment. *Balanitis* may also arise from the irritation caused by thread worms creeping under the foreskin (*vide* p. 425). *Gonorrhœal rheumatism* presents tho same symptoms as acute rheumatism (*vide* p. 316), and is to be similarly treated. *Gonorrhœal warts* usually arise from the irritation caused by the discharge, aided by neglect and uncleanliness, and may be treated as recommended for warts (*vide* p. 404), but may require to be cut off by a surgeon. *Gleet* signifies a thin watery discharge, accompanied by slight scalding. It is often tedious, requiring lengthened treatment and very temperate living. The daily use of a sulphate of zinc injection (Recipe 98) and attention to the general health, with perhaps the use of tonics, as iron and quinine, will generally prove successful. *Stricture* may arise from neglected gleet, when the discharge becomes a symptom of the stricture, and will not cease until the stricture is treated (*vide* p. 365).

GOUT.—Gout is a very painful affection of the joints, arising from a poison generated in the blood. In some characteristics it resembles rheumatism. But gout first attacks the smaller joints, as the toes and fingers, while rheumatism fixes on the larger joints. Gout generally attacks the indolent and those feeding luxuriously; rheumatism the ill-clothed and ill-fed poor. Gout is a disease of advanced life; rheumatism often attacks the young.

An attack, or, as popularly termed, 'a fit of gout,' is usually preceded by irritability of temper, feverishness, headache, and symptoms indicating indigestion. Gout most frequently comes on during the night. There is acute and grinding pain in the part, most usually the great toe, abating towards morning, but leaving the toe red and swollen, tender and shining. There is also acid perspiration, the patient's temper is increasingly irritable, and the urine, at first scanty, high-coloured, and clear, afterwards becomes more copious, and deposits a sediment, resembling pink sand, or pounded brick-dust. For several nights, the pain may return, although it is usually lessened, as the swelling increases. As the pain and swelling subside, the skin of the part peels off in flakes. The disease then disappears, perhaps not returning for six or twelve months afterwards. It may also attack the fingers, causing *chalk stones.* Or in rarer cases it may suddenly leave the toe and attack the stomach, which will be known by sudden and excruciating pain at the pit of the stomach, with flatulence, faintness, and symptoms of *collapse* (*vide* p. 454). In addition to the stomach, gout may also attack other internal organs, as the heart or brain; but such conditions can only be diagnosed, or treated by medical skill.

Treatment.—On the approach of the attack, or 'fit,' the bowels, if confined, should be moved by Recipes 1 and 2, and in the absence of the specific remedy, *colchicum*, mentioned in the small type below, sulphate of soda should be given in two-drachm doses three times a day. But the medicine must not be allowed to depress the patient, and should be reduced in quantity if it acts too much on the bowels. The local treatment consists in wrapping the inflamed part in cotton wool, on which half a drachm of chloroform has been scattered, and then keeping the limb well raised from the ground, and as still as possible. If no chloroform is available, a strong solution (four drachms to an ounce of water) of carbonate of soda may be used. In all cases warmth is the great thing, cold having a tendency to drive the gout to some internal organ. Rest must be absolute, and the diet plain. It must consist only of milk, arrowroot, and the like. As a general rule, all animal food should be avoided. Toast water, or seltzer water, may be taken freely. After a time fish may be given. If there is need for a stimulant, Scotch whisky or gin may be used in small quantities, but for a time stimulants are better avoided.

After the fit regular living must be insisted upon. As a rule fermented liquors should not be taken, although in some instances a little claret, chablis, hock, or gin and water, does not do injury. The diet should be mainly vegetable. Fruits, which contain sugar, should be avoided. Regular exercise, and attention to the bowels, so as to prevent costiveness, are also enjoined.

If the stomach is attacked, stimulants—as brandy and water, ether, or ammonia—must be given, and mustard poultices should be applied to the feet, with the view of restoring the external inflammation.

[Those liable to gout should obtain colchicum wine, and colchicum and potash mixture (Recipe 72). On the approach of a fit of gout, thirty minims of colchicum wine should be taken in a couple of ounces of water, and afterwards the colchicum and potash mixture (Recipe 72) every four hours until the pain ceases, or until depression or nausea results. Usually this will stop the attack in twenty-four hours, after which in any case the treatment should not be continued without an intermission of a day. Also if there is any affection of the heart, the colchicum treatment should not be pursued, except under medical supervision. When the pain has been arrested by colchicum, it should be borne in mind that the disease is only *checked*, and that the real treatment is, principally, regular living *after* the fit. If the local application of chloroform and cotton wool mentioned above does not succeed, a lotion composed of acetate of lead one drachm, acetate of morphia three grains, water eight ounces, should be obtained and applied *warm*. This lotion does much good. It should be recollected that it is poisonous. As preventive of gout, the use of the waters of the places mentioned below may be advised: Bath, Buxton, Cheltenham, Harrogate, Leamington, Wiesbaden, Vichy, Carlsbad, Kissingen, Aix-la-Chapelle.

GRANULATIONS.—This term is applied to the little red portions of flesh which grow in, and fill up wounds. When they are more than ordinarily luxuriant they are commonly called 'Proud Flesh.' Granulations are the consequence of the natural healing process. When they are high, pale, and spongy, they require touching with alum, or sprinkling with powdered loaf sugar, which reduces their growth, and allows the wound from which they spring to heal.

GRAVEL.—Gravel signifies a deposit in the urine. There are two principal kinds of gravel, viz. *red* gravel and *white* gravel.

Red Gravel is composed of *uric* or *lithic* acid, more or less mixed with the colouring matter of the urine. Sometimes, from some variation of the latter, such deposits are rather pink than red. The urine of persons passing red or pink gravel is clear, acid, of dark golden colour, and often less abundant than the urine of health. After it has cooled the red or pink deposit appears as a sediment. Persons noticing such deposits in the urine after it has stood are very apt to believe they may aggregate and form a stone. Such fears may be relieved by heating the urine containing the sediment to the temperature of the interior of the body, about 100° Fahr., when the sediment will disappear, and the fluid will resume its original clearness. Such tawny or reddish sediments are most frequently the result of indigestion, or disordered liver, or arise from a common cold. The pinker varieties are generally associated with acute rheumatism, or gout, or with some febrile or inflammatory disease.

White, or Yellowish Gravel, consists chiefly of a crystalline salt formed from the urine, and called the *triple* or *ammonio-magnesian phosphate of lime.* This kind of gravel is always of more grave significance than the presence of red or pink gravel. The white or yellowish gravel is formed from the urine *before* it passes from the body, and the urine is therefore *turbid when passed,* and if heated does not become clear like urine containing only lithic acid deposits.

But in severe, or long-standing cases, the several sorts of gravel are sometimes mixed, or they may alternate with each other. In such cases, while heating the urine clears the lithic deposits away, leaving the fluid less muddy, the other sediments remain. If hydrochloric acid be now added the white and yellow gravel will be dissolved. If any cloudiness or opacity of the urine remains it will probably depend on the presence of mucus or pus—matters often present in, or associated with, white or yellow gravel.

As above mentioned, the passage of red or pink gravel is generally indicative of some febrile or inflammatory disease, or it may alternate with attacks of gout, and there are seldom symptoms referable to the urinary organs present. But when yellow gravel is passed there are usually shooting pains in the loins, running towards the groin and thigh, with desire to make water, and pain at time of doing so. In the male the testicles are often spasmodically drawn up. These symptoms are accompanied by feverishness, constituting what is popularly termed 'a fit of the gravel.' In some instances, perhaps without the least warning, the patient is seized with a most acute pain in the back and loins, accompanied by violent sickness and vomiting. There is frequent tendency to pass urine, which is scanty, high-coloured, or bloody. At length, during a violent retching, the patient experiences a sudden sensation as if he were stabbed, and from that time his acute pain gradually ceases. When this chain of symptoms happens to a person passing white gravel, it is evidence that a small gravel-stone, formed in the kidneys, has passed through the ureter (a small tube connecting the kidney and the bladder) into the bladder, where it may remain, increase in size, and become stone in the bladder, or from which, if small enough, it may pass out with the urine.

Treatment.—This varies with the kind of gravel discharged, and also during the 'fit' or acute stage, and during the interval. When a 'fit of the gravel,' as described above, occurs, the great desideratum is the relief of pain. The patient should be placed in a hot bath and be given five-and-twenty grains of chloral, which may be repeated in six or eight hours if the pain continues or returns. Dry cupping (*vide* p. 600) may be used over the loins, and the bowels, if confined, should be opened by a purgative draught (Recipe 2). The patient should also drink plentifully of barley water, or linseed water, or weak tea.

[After the 'fit of the gravel' has passed away, attention must be directed to the alteration of that condition of system on which the formation of the gravel depends. When the red variety is present, a diet chiefly vegetable, and in some cases strictly so, should be adopted, and alkaline medicines (Recipe 55) should be given so long as the urine remains, as it generally is in such cases, of an acid character. This may be ascertained by testing the urine daily with *litmus* paper made and sold for such purpose. Aperients, such as Recipes 1 and 2, should be taken every other night and morning. Magnesia is also strongly recommended for some cases of red gravel, either taken alone in doses of ten grains, or with half that quantity of bicarbonate of soda, or ten grains of magnesia may be taken in a draught of soda-water. Alkaline aërated waters, as Vichy or Seltzer, are often very beneficial.

The time when the urine is most acid, and alkalies are most required, is about three or four hours after the principal meals. An alkali and an aperient may be then combined with a bitter tonic as follows. Take of bicarbonate of soda ten grains, sulphate of soda two drachms, infusion of orange peel three table-spoonfuls, for a draught to be taken a couple of hours after eating. When indigestion, red gravel, and costiveness are combined, this will be found very useful, and the salts may be increased or diminished according to circumstances.

In cases of white or yellow gravel, acids are the best medicines. Dilute nitric acid may be given in doses of twenty minims in water or with infusion of orange peel. Tonics, as quinine, will also probably be required. When yellow gravel is deposited, a more generous diet may be allowed than when red gravel appears, and a moderate quantity of wine will usually be proper. Meat, soup, milk, eggs, good bread, sound sherry, or bitter ale, are the articles to be preferred. Sugar, pastry, sago, arrowroot, and bad wine to be avoided. Fresh vegetables, as cabbage, lettuce, mustard and cress, may generally be taken with advantage.]

If with the passage of gravel there is also mucus or pus in the urine, known by the thick ropy appearance of the deposit, and by the sediment not dissolving by heat and acids, chronic inflammation of the bladder will be present (*vide* p. 65).

GUINEA WORM.—Guinea worms are very prevalent in many parts of India. A full-grown guinea worm may be upwards of three feet long. It is cylindrical and slender, about the thickness of packthread except at the extremity, where it is attenuated to the calibre of a hair. It is opaque, of a milk-white colour. On each side there is a longitudinal line, and when examined with the microscope it is seen to be marked with numerous transverse *striæ* or stripes. The interior of the worm contains a vast number of young worms rolled up in coils. Guinea worm is most common in India during or after the monsoon. The young or ova of the guinea worm are believed to exist in the water of dirty tanks and wells, and they probably enter the system in two ways. They may penetrate through the perspiratory ducts, of which there are some 3,500 in every square inch of skin, or they may be taken into the stomach with drinking-water, making their way from that part into various portions of the body. However the ova or young worm is introduced, it slowly grows until it attains several feet in length, giving probably, during this period, little or no indication of its presence. The period which elapses from the reception of the embryo into the system, till the appearance of the worm, is from three to six months. The most usual positions in which it appears are the lower extremities, but it may be present in almost any part of the human frame. Attention is generally first attracted to it by the feeling of a thin cord beneath the skin, or otherwise by the formation of the characteristic blister always attending the presentation of the end of the worm on the surface of the skin. The blister so forming assumes the size of half a pigeon's egg, and is frequently accompanied by intolerable itching of the surface of the body, or by an eruption resembling nettle-rash. When the blister breaks or is opened, it is found to contain a glairy whitish fluid, in which the end of the worm may be found, thin and fragile as the finest hair.

Treatment.—If the worm can be felt lying beneath the skin for a considerable distance, and there is therefore reason to believe its situation is altogether superficial, it may be cut down upon, a ligature passed beneath it, and the worm may be gradually extracted. Otherwise the end of the worm as it presents in the blister must be seized and fastened to a quill. Then, by very delicate management, a little may be extracted daily, by gradually winding the worm round the quill. But care must be taken, lest the worm break in the process of extraction, or lest the part of the worm round the quill becoming dry breaks, even without the application of force. An alum lotion (Recipe 100), applied with lint over the part, both softens and strengthens the worm, and so tends to prevent breakage. Extraction should only be attempted once in twenty-four hours, when perhaps an inch, and perhaps a foot, may be gained. The force applied should not be great, and the pulling should be delicately and yieldingly managed. It requires, indeed, a sort of 'knack,' only obtainable by experience, but which some native doctors possess to perfection. A stream of water over the part will often assist extraction.

If the worm breaks, abscess and fever are the general results. The part must then be poulticed, and any matter forming liberated by means of the lancet, and if the broken end of the worm can again be seized, it should be extracted gradually, as before. Otherwise it comes away piecemeal with matter forming in various parts of its course, entailing an oftentimes long, tedious, sometimes dangerous illness.

GUM BOIL is a small abscess, generally commencing in the socket of a carious tooth, and bursting through the gum; or, if neglected, through the cheek. There is great tenderness of the tooth, especially on pressure, severe throbbing and aching pain, and a feverish condition of the body.

Treatment.—As soon as matter can be detected it should be liberated by a prick with a lancet. If the tooth causing the gum boil is much decayed, or there is only a fang, it should be removed, otherwise there will be a succession of gum boils. Fomentations may always be used with advantage to allay pain.

HAIR. 1. LOOSENING AND FALLING OFF OF THE.—In young persons of both sexes this may occur from natural weakness of constitution; or it frequently happens after fevers, or to women who have suffered much during childbirth. First, the ends of the hair over the whole head should be snipped off. Then the longer hair should be carefully separated, and the weak short hair snipped about once every nine days. The surface of the head should be well washed with cold water, or with solution of 'areca nut' every morning, and then rubbed with a rough towel sufficiently to cause heat or even redness of the scalp. The use of the brush should in all cases be frequent, and it should be so employed as to cause warmth to the scalp. The above measures are more applicable for women desiring long luxuriant hair than for men. The hair of men will be best preserved strong and thick in India, by keeping it cut short, and by cleanliness, and the use of the brush. *Scurf* or *dandriff* is to be got rid of and prevented forming by similar means.

[When this does not do good, the following will be found to be an excellent application. Take of olive oil two ounces, bicarbonate of potash a quarter of an ounce, solution of ammonia a quarter of an ounce, tincture of cantharides two drachms; mix well. To be applied by rubbing on the surface of the scalp and at the roots of the hair, after washing with cold water. It should produce a glow.]

2. FALLING OFF OF THE HAIR IN PATCHES.—If the patches are circular, and small pimples are seen on the denuded part, or at the roots of the hair immediately round it, or if hairs are seen broken, or running in an unnatural direction, there will probably be some form of skin disease, as ringworm, present (*vide* p. 335). When no pimples are seen, and the skin of the denuded portion is quite white, it is the affection known as *Alopecia*, and for this a strong solution of borax of soda applied daily will be the best means of cure.

HEADACHE.—This disorder arises from various causes which it is important to distinguish. It is generally associated with other symptoms indicative of its origin, and every variety requires some special treatment. The principal kinds of headache (which may be distinct, but are often combined) are as follows:—1. *Stomach Headache*; 2. *Liver Headache*; 3. *Nervous Headache*; 4. *Brow Ague*, or *Brow-ache*; 5. *Brain Headache*; 6. *Rheumatic Headache*.

1. STOMACH HEADACHE.—The pain is usually felt in the forehead, or over and around one eye, and is of a 'throbbing or bursting' character. It may be attended with thirst, feverishness, and feeling of sickness or nausea, when it is often called 'sick headache.' It may last for a few minutes or for many hours, and generally comes on suddenly after meals, or is felt early in the morning. Stomach headache, when the pain occurs over the eye, is often, especially in India, erroneously regarded and treated as neuralgic or malarious by quinine, whereas the remedies for dyspepsia are required for its relief. Sick headaches are very common to young persons leading sedentary lives; stomach headaches, or pain without nausea, occur to stronger persons who have exceeded either in eating or drinking, and especially when bad wine or spirits, or various indigestible articles of food, have been taken. If such headaches commence shortly after a meal, an emetic of mustard and water will often afford effective relief. For sick headache, twenty drops of sal volatile in an effervescing draught of citrate of magnesia and a cup of strong tea or coffee half-an-hour afterwards, with rest and quiet. For other kinds of stomach headache a purgative draught, as Recipes 1 and 2, is advisable. Rest, quiet, and sleep are also essential.

2. LIVER, or BILIOUS HEADACHE.—Headache arising from disorder of the liver is characterised by a sense of tightness across the forehead, the pain being of a stupefying nature, often accompanied by retching. It may be felt more on one side than the other, and frequently goes off suddenly with a 'click' felt at the pit of the stomach. This form of head-

ache may be often relieved by drinking a large draught of soda-water, or by three drops of chloroform in an effervescing draught of citrate of magnesia. If continuing, it is attended with coated tongue, offensive breath, flatulence, low spirits, nausea, scanty urine, and clay-coloured stools, and Recipes 1 and 2 should be taken; and, if necessary, repeated several times. Or Friedrichshall water may be used instead of Recipe 2.

3. Nervous Headache.—This occurs after mental or emotional excitement, and is more common in delicate persons leading a sedentary life, and in nervous females about the monthly period. Those subject to this headache are usually pale, feeble, and easily flushed or excited. The pain may be confined to one spot, or it may be general over the front part of the head. Hysterical girls are often subject to attacks of nervous pain in one particular spot, which has been likened to driving a nail into the head, and hence the Latin name *clavus* has been given to it. Nervous headache may arise without evident stomach or liver derangement, but such conditions are often present. Persons who suffer from it may not be chargeable with either eating or drinking to excess, yet they fail to treat their stomach as it requires. If not erring in quantity of food, they do so as regards quality. For instance, many abstaining from wine, beer, or alcoholic stimulants, drink tea and coffee in excess, and thus irritating the nervous system experience nervous headache. Others, intent on business or pleasure, neglect the proper or periodical hours for taking food; some, forgetful that motion is one of the laws of existence, remain in close apartments without exercise, and some again inflict injury on their nervous systems by the immoderate use of tobacco. In all the result—viz. one or other variety of nervous headache—is the same. Relief at the time is to be best obtained by repose, sleep, and sal volatile in camphor water. To escape nervous headaches the habits must be altered. The immoderate tea

or coffee drinker must take milk and water; the devotee to pleasure or business must relax; the indolent or sedentary must adopt regular hours and exercise; the tobacco smoker must abandon the practice, or at least lessen his consumption; lastly, plain wholesome food must be substituted for made dishes and pastry.

[When headache of this character occurs to females about the monthly period, bromide of potassium (Recipe 46) may be taken.

4. Brow Ague, or Brow-ache.—This term is applied to pain of a very severe character affecting the forehead, *generally* above one eyebrow, or sometimes more diffused over one side of the head. From it so affecting half the head only, it has been called *hemicrania*; it also has been termed 'sun-pain,' as sometimes it only continues so long as the sun is above the horizon; *migraine* is another term for the affection, which occasionally attacks one eye, and is then spoken of as *migraine of the eye*. As it often occurs at intervals, it has been termed *intermittent headache*; when occurring to women it is frequently spoken of as *megrims*; lastly, all varieties are often included under the general term *neuralgia* (*vide* p. 293). The malady in all its phases is an affection of the nerve (*supra-orbital*) which, perforating the bone above the eyebrow, is distributed to the adjacent parts. But this nerve may be affected by different causes. *First*, *true brow ague* is the result of exposure to malarious influences, is always most prevalent in malarious localities, and sometimes takes the place of a paroxysm of ague. This form of the malady occurs at regular intervals, as daily, or every second day, and is often distinctly confined to the course of the *supra-orbital* nerve, commencing from near the middle of the eyebrow, and passing outwards across the forehead. Sometimes there is a visible red line in the track of the nerve. The pain, while it lasts, is often very intense, and increases in paroxysms, causing the eyes to water and the nose

to discharge, and rendering the sufferer utterly unfit to attend to any business. It may persist during the whole day, but ordinarily attacks of purely malarious brow-ache subside in the course of two or three hours. *Secondly*, a very similar pain may arise as the result of indigestion or dyspepsia, but as a rule this pain is more diffused over the side of the head than that depending on malarious influences, and therefore more deserves the name of *hemicrania*. *Thirdly*, when women have been subjected to weakening influences, such as frequent child-bearing, prolonged suckling, or profuse menstruation, there are additional causes from which neuralgia of the head may arise; so much the more certainly, if the patient has been residing in hot, debilitating, or malarious localities. *Fourthly*, brow ague may depend, and *most frequently* does depend, *partly* on one cause, and *partly* on another. It may be due to malarious influences, and be aggravated or re-excited by stomach or liver derangements, or by a low condition of system; or it may be due to stomach or liver derangements, or dyspepsia, or a low vitality, and be aggravated or re-excited by malarious influences. This variety of head-ache is most frequently met with in sensitive and nervous people, especially after excitement of any kind or mental worry. Any cause, in fact, which produces a strong impression on the nervous system of those who are disposed to it will bring on an attack. Exposure to heat, and fatigue, working late at night, cold, damp, dinner parties, loss of usual rest, will frequently re-excite the malady. Stumps or bad teeth often localise the pain in the other branches of the same nerve which supply the upper and lower jaw; and then the pain is transferred to the lower parts of the face. In women subject to the disease it often returns at or about the period of the monthly courses. It is to the affection occurring at such times that the term *megrims* is generally applied. The variety of the malady, consequent on the second, third, and fourth causes above mentioned, comes on at varying but not regular intervals; sometimes lasting a few hours, at other times two or three days, and, like the true malarial type, the pain is worse and better in paroxysms. Those who suffer from this disease often wake in the morning suffering severely, unable to swallow any food, and probably feeling sick. The head throbs and movement or conversation is painful, the face is pale, the pupils contracted, and there is often a dark appearance under the eyes. The head feels hot, and the application of cold is generally refreshing. The patient begs to be left alone, and to be kept quiet, as the only means of obtaining relief.

Treatment.—The treatment of brow ague, or *hemicrania*, must be considered with reference to the cause. In India first attacks are generally of malarious origin, and may be cured by five- or six-grain doses of quinine every three hours, preceded, if necessary, by Recipes 1 and 2, to open the bowels. In pure malarious intermittent headache one grain of quinine mixed with three of starch, used as a snuff, will often afford relief. Repeated attacks will be generally due to a combination of the effects of malarious or debilitating influences, and stomach or liver derangements, and therefore existing indigestion and dyspepsia must be first treated, after which tonics, as quinine (Recipe 17), may be used. When the malady occurs to females, attention to any irregularity of the monthly flow is demanded (*vide* p. 409). Bad teeth should also be attended to.

During the actual attack of pain the most decided relief is to be obtained sometimes by pressure with the finger over the most painful part; sometimes by a tight wet bandage round the head; by profound quiet, and by a darkened room. Holding the arms above the head occasionally gives ease. Hot tea or coffee will also often soothe the nervous system and give relief; or, in some cases, a glass of wine or a dose of sal volatile. Medicines at the time of pain do not, as a general rule, do much good. Of local medicinal applications, chloroform applied to the most painful part on a piece of lint, covered with a watch glass to prevent evaporation, is probably the most satisfactory. Or a small mustard poultice may be placed on the temple or forehead. Equal parts of chloral and camphor, mixed together, form a syrupy liquid, which rubbed on the parts generally affords much ease. Sometimes hot fomentations give most relief, but in the majority of cases more ease is experienced from cold or ice. After the pain has passed away, the general treatment consists in attention to the bowels, in the avoidance of anything likely to cause indigestion, and in the use of quinine, as mentioned above.

[If quinine does not suffice to stop the attacks, iron should be tried (Recipe 22), and this not proving successful, arsenic (Recipe 27). But each tonic should have a fair trial of at least a fortnight's duration. *Croton-chloral* in five-grain doses, every four hours, may be tried for a week. Other local applications which may be obtained and used are Recipes 89, 90, 91, the latter being perhaps the most generally successful.]

5. BRAIN HEADACHE.—Different from the above varieties is the form of headache occurring in older persons, and caused by what is popularly known as a 'flow of blood to the head.' It often presents as 'warnings' of more serious disorders, as apoplexy, or sunstroke; or from the stoppage of accustomed discharges, as from piles; in women not unfrequently occurring in consequence of the 'change of life.' In such cases the habit of body is usually full and plethoric, the complexion florid, and giddiness is apt to come on in stooping. In severe cases the pain is throbbing with redness of the eyes and flushing of the face, a feeling of tightness across the head, a fulness or whizzing behind the ears, and often thirst and feverishness. There is, in fact, a slight degree of congestion of the brain (*vide* p. 76).

Treatment.—If the pain is slight, purgatives, as Recipes 1 and 2, with abstinence from stimulants, restricted diet, rest from brain-work, and care against exposure to the sun, with moderate exercise, are necessary. When severe, with feverishness, rest in a sitting posture, quiet, cold lotions to the head (Recipe 83), cutting the hair short, and eight or ten leeches behind the ears will be advisable.

6. Rheumatic Headache.—Headache may be due to rheumatism of the muscles of the scalp. This will generally be attended with rheumatic pains in other parts, and the pain will be felt to be *outside* the head in the scalp, becoming worse on wrinkling the forehead or otherwise moving the scalp muscles. This variety of headache should be treated by alkalies and colchicum, as advised for *Rheumatism* (*vide* p. 318).

HEART, DISEASES OF.—To distinguish the diseases of this organ requires a high degree of medical skill, and accurate knowledge of the anatomy of the organ, a correct ear to judge of the sounds, and much practice. Most of the maladies to which the heart is liable are therefore beyond the sphere of domestic medicine. But there are certain disorders of the heart obvious enough to anyone, and which, when they first occur, may be met by domestic remedies, relieved, and thus prevented from becoming serious.

The apex or point of the heart moves as it beats. The point is behind the ribs on the left side, two inches below the nipple, and one inch to its inner side. The sounds of the heart are best heard on listening at this spot. These are two in number. The first sound is dull and prolonged, while the second is sharp and short. The difference between them is expressed by articulating the syllables *lŭbb*, *dŭp*. In disease of the heart these sounds are altered, a blowing or gushing being frequently substituted for the healthy, clear sounds. Such changes indicate disease of the valves, which is not unfrequently a sequence of rheumatism. Valve disease is also caused in advanced life, by bony matter deposited on the valves from the blood, and impeding their free working.

Irregularity of pulse, palpitation, and fainting, are also symptoms of heart disease. But such symptoms also accompany indigestion, so that without a knowledge of the healthy and diseased sounds of the heart a proper conclusion regarding the true significance of such symptoms cannot be arrived at. If, however, dropsy or swelling of the legs occurs after such symptoms, unless the patient be a young woman with disordered menstruation, some serious malady may be suspected.

Heart, Palpitation of the.—This denotes a sudden and irregular action of the heart, often accompanied by sensations of great distress and faintness. In the great majority of cases this does not signify any serious disorder, but is caused by indigestion and flatulence. It often accompanies anæmia, hysteria, and amenorrhœa (*vide* pp. 50, 261, 409), and is common during pregnancy.

Palpitation arising from disease of the heart itself, and palpitation depending on other causes, may be distinguished as below.

Palpitation depending on Disease of the Heart.	*Palpitation arising from other Causes.*
Most common in men.	Most common in women.
Comes on gradually.	Comes on suddenly.
Constant, though more marked at one time than another.	Occurs at intervals of perfect freedom.
Frequently accompanied by pain in the left shoulder.	Frequently accompanied by pain in the side.
Lips and cheeks often livid, and countenance florid.	Countenance pale.
Most common after forty-five.	Most common in young persons.
Often not much complained of by the patient.	Usually very much complained of.
Sounds of the heart altered.	Sounds of the heart healthy.

To relieve palpitation give a tea-spoonful of sal volatile in a glass of water, or some ether, or a little wine, and attend to the state of the digestion, and use remedies for constipation, if such condition prevails. Strong tea or coffee has been known to cause palpitation, and smoking tobacco frequently does so.

HEART, SPASMS OF THE, also called *Angina Pectoris*, and *Suffocative Breast Pang.*—This occurs chiefly in advanced life. It consists of a temporary stoppage of the organ, and is attended with *intense* pain of a shooting tearing character, extreme difficulty in drawing the breath, great anxiety, with sense of impending death. The attack ordinarily passes off in a minute or two, but may last longer. It leaves the patient tolerably well, but sometimes much weakened. The first paroxysm usually occurs when the patient is walking up hill, or after a heavy meal, especially if taken at night. The attack is very likely to recur, but at no fixed interval, months or years sometimes elapsing. It is rarely that the earlier attacks of breast pang terminate fatally; but as the spasms depend on some organic change in the heart, or its arteries, *angina pectoris* must be regarded as a most serious malady, placing life in jeopardy.

Treatment.—During the attack, a stimulant, as wine or brandy, is required immediately, and afterwards remedies to relieve any attendant dyspepsia. The great point is to ward off future attacks, and this is only accomplished by the greatest care in diet, and by refraining from all exertion which accelerates the breathing. A person subject to this disease should always carry an ounce of brandy, or a teaspoonful of sal volatile in a little water, on his person, so that the stimulant may be taken immediately on the commencement of an attack.

[The best remedy is *nitrite of amyl.* A few drops should be sprinkled on the pocket-handkerchief, which should be held to the nose and mouth, so that the vapour may be inhaled. Or it may be obtained in glass capsules, each containing enough for a single inhalation, and which may be carried in the pocket.]

HEARTBURN.—This term is applied to a feeling of heat in the chest and throat, often accompanied by hot, acrid eructation of watery matter from the stomach into the throat (*vide Water Brash*, p. 164). This malady has nothing to do with the heart, but is a symptom of indigestion, and should be treated with laxative and alkaline draughts, as Recipe 2, or citrate of magnesia (*vide* p. 14).

HICCUP.—Hiccup consists of sudden, short, convulsive, spasmodic inspirations, attended by a peculiar sound produced in the *larynx* or upper part of the windpipe, and immediately followed by expiration. These convulsive inspirations ordinarily occur in paroxysms, and may succeed each other at intervals of a few seconds. The paroxysm may last only a few minutes, or may extend to hours or days. Hiccup in the great majority of instances arises from indigestion, or from food being hastily swallowed. But it is sometimes present as a symptom during the progress of diseases of the liver and stomach. When depending on indigestion it may be generally relieved by taking a few grains of bicarbonate of soda and ginger, or by a little brandy and water. Sometimes in the case of indigestible food lodged in the stomach vomiting is required to produce relief, and a mustard emetic may be given. Spirits of camphor, chlorodyne, and sal volatile are also good remedies. Swallowing a piece of ice will sometimes give relief. When the attack is slight it may often be stopped by making a very full inspiration, and then holding the breath as long as possible. Strong pressure, as a belt tightly drawn round the waist, will sometimes stop hiccup. Or pressing firmly near the end of the collar bones next the throat with the thumb may be successful.

HOOPING COUGH.—Hooping cough is called also *Kink-cough*, and *chin-cough.* It is a contagious cough happening generally to young children, but sometimes to adults, and usually only once in life. It commences as a common cough or cold, but after some days the cough comes on in fits, after which the breath is drawn in with a long effort, and accompanied by a peculiar sound or 'whoop.' In bad cases there may be twenty or thirty paroxysms in a day, and several fits of coughing without the whoop being heard. A child with hooping cough soon learns when the paroxysm is commencing, and is frightened. He rushes to the arms of the mother or nurse; or, if of a more advanced age, stamps his feet in a state of convulsive agitation, and clutches some article of furniture, as a fixed point, by which to steady himself. Vomiting frequently attends the fits of coughing, and the suffocation of the child may appear threatened, when suddenly the characteristic whoop is heard, which terminates the paroxysm, and the child returns to its play. This spasmodic cough is very exhausting and very trying to weakly children, often exciting vomiting and continued rejection of food, so that children with bad hooping cough frequently cannot retain sufficient food in their stomach to supply the wants of the system, and may suffer from actual starvation. Simple hooping cough is never fatal; but unfortunately hooping cough may excite other maladies of a very diverse nature. Thus the force of the cough may cause blood-shot eyes, bleeding from the nose, or from the ears, and sometimes *rupture of the drum* of the ear (*vide* p. 172). Occasionally also *rupture* (*vide* p. 529) is caused by the force of the cough. In most cases there is some degree of *bronchitis* attending the complaint, which is shown by hurried breathing, feverishness, and by wheezing heard in the chest (*vide* p. 89). In some cases *inflammation of the lungs* is even induced (*vide* p. 285). In other instances, from injury to the lungs from the force of the cough, the foundation of asthma is laid (*vide* p. 57). Or there may be, especially in weakly children, tendency to *hydrocephalus*, marked by sudden startings from sleep and rolling of the head (*vide* p. 77). *Convulsions* may also be excited, the approach of which is indicated by contractions of the fingers or toes, or by turning in of the thumb to the palm of the hand (*vide* p. 121). Lastly *diarrhœa* may supervene (*vide* p. 143).

The average duration of hooping cough is about six weeks, but it may get well in a few days or weeks, or continue for months. The danger of infection lasts six weeks after recovery.

Treatment.—During the paroxysms of cough, the child's back should be supported with one hand, and the forehead should be supported with the other. Mucus coughed up, or anything vomited, should be wiped away from the mouth, and the back should be gently rubbed. In the intervals between the paroxysms of cough the chest should be daily rubbed with equal parts of brandy and salad oil, or with soap liniment; the bowels should be regulated by castor oil or senna, and Recipe 31 should be given. If the spasms of cough are severe, and there is no chest complication, a bath at 98° Fahr. for ten minutes every night will be salutary. This, instead of weakening, will strengthen the child, by increasing the action of the skin, and enabling it to do its part towards throwing off the disease, while it allays irritability and causes better nights. To lessen the depression caused by the fits of coughing, ammonia is valuable. Four drops of sal volatile should be given to an infant one year old, and eight drops to a child three years old, several times daily, or after each fit of coughing, in a little milk and water. Chloral occasionally at night, in the dose of three grains for a child of four, will often prove beneficial. In very bad cases twenty drops of chloroform may be placed on a handkerchief, which is to be held *half a foot* from the child's face *during the fit.* The diet should also be well attended to, and no indigestible food allowed. In cases where vomiting is a prominent symptom, strong broth or soup should be given immediately after the paroxysm of coughing, so that there may be time for some digestion of food to take place before the next attack comes on. In the latter stage of obstinate hooping cough nothing is so serviceable as change of air. But in the earlier periods of the malady there is often considerable feverishness and tendency to bronchitis. When such conditions prevail the patient should be kept warm, and the exposure which change of air necessitates should not be thought of. Complications, as bronchitis, convulsions, affections of the head and bowels, must be treated as mentioned under such headings.

[Numberless remedies have been tried to cure hooping cough, but none will always succeed. Dilute nitric acid in ten-drop doses, taken in a table-spoonful of water, is often beneficial, and the dose mentioned may be given to a child two years old. Recipes 34, 35, 36, 37, may be procured and tried in succession. Hooping cough frequently causes great debility, and tonics, as quinine and iron (Recipe 21), should then be given, in doses corresponding to the age of the child (*vide* p. 5).]

HOUSEMAID'S KNEE.—This term is applied to inflammation of the 'bursa,' or little water-bag situated over the knee-cap. The *front* of the knee joint is swollen and tender, with a feeling of 'crackling' if touched, and there is considerable pain. It results from injury or from constantly kneeling; hence the term 'housemaid's knee.' The swelling should be leeched, warm fomentations should be applied, and perfect rest enjoined. After recovery a bandage should be worn for some weeks.

HYDROPHOBIA.—The saliva from the mouth of a rabid animal, as a dog or jackal, a wolf or cat, is the poisonous agent causing this disease; and a very slight wound, either from teeth or claws, if saliva be on the latter, is sufficient to introduce the poison into the system. After a bite from a mad dog hydrophobia may come on in the course of some weeks, or it may be delayed months, or even, in exceptional cases, not appear for years; but it is rare after the fortieth day. It does not, however, follow that everyone bitten by a mad dog must suffer from hydrophobia. The saliva may be wiped off by clothing, through which the animal's fang passes; or otherwise the person may escape without any assignable reason.

Symptoms.—In most cases there is slight irritation at or near the scar of the wound, and there may be vague feelings of uneasiness, gloom, with irritability of temper and frightful dreams; also in many cases fear and dismay lest hydrophobia should occur. After a few hours or days the patient complains of stiffness of the neck and difficulty of breathing, which suddenly pass into suffocative spasm, most probably on some occasion when the patient attempts to drink. The horror of water or fluid is generally very marked, the noise or sight of water, or a rush of cold air, producing convulsions. The patient now spits and foams, clawing at the throat as if to remove some obstruction. In two or three days the patient dies from exhaustion.

In some cases, at the commencement, or before the beginning of the disease, the presence of a vesicular eruption under the tongue has been noted. This has been thought to be distinctive of hydrophobia, as other eruptions are of other diseases. This should be looked for daily. It should also be looked for in persons who have been bitten by a mad dog, as it has occurred as early as the third day after the injury, long before any of the symptoms mentioned above present.

It should also be known that there is a distinct affection, arising from nervous influence, or fear, after injury by an animal which is *not* mad. This is called *spurious* or *false hydrophobia*, but the symptoms are very similar to those of the real disease. It is believed that instances of reputed recovery from hydrophobia are usually from this false form of the malady, which may be regarded as present, when it can be proved that the sufferer has *not* been injured by a rabid animal.

Treatment.—Recovery from true hydrophobia is very rare. Opium, chloroform, or chloral should be given to relieve pain, thirst may be alleviated by ice, and mustard poultices should be applied to the upper part of the chest. If the eruption under the tongue is found, all the vesicles should be pricked with a lancet.

[Mercurial fumigation may also be tried, and may be effected as follows. Place the patient on a cane chair with two or three thick blankets fastened round the neck, so as to hang in front and behind. The sides of the blankets should be well wrapped over and secured. Then cover with a mackintosh cloak or sheet. Then from the back of the chair place underneath the seat a pan of live charcoal, or a spirit lamp, above which, supported by a wire stand, or by two bricks, a tin plate containing three drachms of calomel must be arranged, so that the latter may become well heated. Have also outside a kettle of boiling water, kept boiling on another charcoal pan. The steam from the kettle spout must be conveyed underneath the blankets by a tube or other means. As the tin plate becomes heated the calomel evaporates or sublimes, and watery vapour, or steam impregnated with mercury, is conveyed to the whole surface of the body, while copious perspiration will also be induced.

[When the calomel has all sublimed, the patient should be put to bed, care being taken that no cold air plays on the body, and for some hours the perspiration should be encouraged by heavy clothing.]

Symptoms of Rabies or Canine Madness.—The dog affected is at first restless and irritable and hides in corners, while food is refused. The look is suspicious and 'sneaking,' the tail drooping, and there is often redness or watering of the eyes. Sometimes the animal wanders about looking for bits of paper or pieces of straw, which it seizes and eats. It is also fond of rubbing the nose on cold objects. The bark becomes changed and hoarse, the hair set or 'staring,' and the dog snarls and snaps at children and others with whom he was previously on the best of terms. In a short time saliva begins to flow from his mouth, and the throat becomes inflamed, but there is no dread of fluid, as in the human subject, the dog lapping water during the whole illness, which, however, is often not swallowed, but flows out of the mouth.

Treatment of the Bite of a Rabid Animal.—There is reason to believe that the poison remains dormant near the wound until hydrophobia is excited. It is believed that it does not, like snake poison, enter the system immediately. When the arm or leg is bitten, a pocket-handkerchief or piece of rope should be tied tightly round the limb above the bite. The person should then forcibly suck the wound; or, if from position he is unable to do so, some friend may perhaps perform the office. No danger is incurred, provided there is no wound on the lips or mouth of the person sucking. As soon as possible the bitten part should be cut out, and water dressing applied. If not done at the time it should be effected days or even weeks afterwards, *should the person appear fearful of hydrophobia.* If position forbids cutting the part out, several punctures should be made near, and bleeding should be encouraged by suction, or by the use of cupping glasses. But when the patient is not seen until the wound is healing, it will be better in the *absence of fear*, and in the absence of symptoms, to leave it alone. In all cases everything should be done to reassure the patient, and he should be made to understand that all has been done which can be effected.

If after a bite from a mad dog the person will not submit to the knife, or if a sharp knife is not at hand, nitrate of silver may be thoroughly applied; or, if not available, strong nitric acid or sulphuric acid, or caustic potash, or boiling oil, may be applied to the wounds. One or two drops of either of the agents named should be dropped into the wound, taking care that the fluid used does not run over the surrounding skin. Or the *actual cautery* may be used. This means a red-hot iron, such as a thick iron wire, introduced for a few moments into the wound. It is stated that the pain of the actual cautery is not nearly so acute as is believed, especially if the iron is very hot, and if it is pressed firmly against the part. Filling the wound with gunpowder, and flashing the gunpowder, is also a ready and successful method of destroying the virus which may have been introduced.

HYPOCHONDRIASIS.—This condition, which is popularly known as *hypped* or *the vapours*, is common in India, and may be regarded as the correlative in the male sex to hysteria in the female. It may depend on two very different causes. It may arise from too good living and too little exercise, combined with absence of mental occupation—from, in short, a too sluggish existence. But it may also originate from overworking the brain at desk or office. In the first form of the malady the hypochondriac usually fancies himself the subject of various bodily ills, and does not believe if told there is little the matter with him. Very frequently there is some functional disorder of the liver, or indigestion present, which laxative medicines and exercise in the open air will soon carry off. If these means are not taken, and if exercise is not continued, the hypochondriac from the above causes, seldom possessing internal or intellectual resources, and being too indolent for physical exertion, takes to pondering over his own morbid or fancied morbid feelings, magnifying trivial ailments into importance, and ending by feeling his own pulse, examining his own tongue, and observing his general bodily condition many times a day. He is also fond of consulting medical books, and confuses himself with their contents. Next to the slight dyspeptic symptoms mentioned above, the most common complaints of the hypochondriac are of neuralgic pains of a burning character, but not the throbbing, excruciating, aching of true neuralgia (*vide* p. 293). When the hypochondriacal state arises from overwork, bodily ailments are less the subjects of notice. But the patient loses bodily energy, becomes weak and sometimes emaciated, and there is sleeplessness, dreaming, and a feeling of utter misery, with an undefined dread of something wrong occurring. The heart, the lungs, or the liver are also sometimes erroneously supposed to be affected. In short, the hypochondriac from whatever cause, is under a despotism of imaginary evils, and is often also morbidly sensitive of the opinions and actions of others. For the proper treatment of this malady the cause must be sought, and in one set of cases employment for the mind will be wanting; in the other class, exercise for the body. The person suffering from the effects of severe or long-continued mental labour will require relaxation and bodily exercise; the man having nothing to do will require some employment for the mind. The latter is not likely to be made too severe; but the mistake of taking spasmodic exercise, violent one day and none the next, is often made by persons suffering from mental strain. But it is scarcely possible for him who desires to excel in mental work to vie with an athlete, or *vice versâ*. The two things are rarely compatible at all, and never for any long period. The above advice is, however, rather to be regarded as a means of maintaining health, or of recovery from slight attacks of the malady, than as the cure of serious ailment. Neither do medicines do much good at any time. When a person is really 'hypped,' there is only one decisive remedy—namely, change of air and scene. Whether the condition has arisen from overwork or from a sluggish existence, change of air, scene, and occupation are the requirements. A very short time will often work wonders, and it is in such cases that the ability to take three months' leave for the trip to England is invaluable. Neither, so far as business is concerned, need there be any hesitation in leaving; for work done in the 'hypped' condition is seldom satisfactory. Indeed, it often happens that 'home sickness,' or longing for home, known as *nostalgia*, is a prominent idea in the mind of the hypochondriac. And this is especially the case with Natives of one part of the Eastern Empire serving in another, and who are often the subjects of the hypochondriacal condition. It would almost appear, in some cases, as if this longing for home were nature's method of pointing out the path of cure. These remarks may well be closed with the caution that low spirits are *not* to be combated by stimulants, nor sleeplessness by opiates. The 'hypped' person having recourse to stimulants, or to chloral, pursues a dangerously rapid path to mental imbecility and to physical incapability.

HYSTERIA.—This is the term applied to a deranged state of the constitution and nervous system of females; especially those in easy circumstances, and of sedentary habits. Hysteria manifests itself in two ways; *first*, by a long train of nervous symptoms; *secondly*, by attacks of convulsive fits, commonly called 'hysterics.' A person may suffer from the nervous symptoms presently named, and from occasional hysterical fits; or, she may suffer from occasional hysterical fits, the intervals between such fits being more or less, or even altogether, free from nervous symptoms.

The principal nervous symptoms are flushings, flatulency, hiccup, palpitations, difficulty of breathing, choking sensations, a feeling as of a ball in the throat, and loss of voice. Hysterical pains in various parts of the body are also very common. One called *clavus* is described as like a nail being driven into the head (*vide* p. 245). The left side, the nipples, the joints, are also often affected, and the pains complained of are always *terrible*. Nearly every ailment may be simulated by hysteria, and the patient will plaintively detail symptoms very similar to those of real disease. Thus it may be supposed that an hysterical female is suffering from inflammation of the bowels, or of the womb, when there is nothing of the kind the matter. Stiffness, or even *paralysis* of a joint, affections of the spine, and retention of urine are well-known hysterical complaints. But, as before observed, all pains described by hysterical females are *terrible*, and not in accordance with those of the real disease. The skin is touched, and the patient screams; but on pressing firmly there is no increase of pain, which would be the case were inflammation and real disease present. The face meanwhile is not worn, and expresses no suffering. There is a peculiar expression of countenance, and a drooping of the eye-lids, very characteristic of hysterical persons, and questions are answered abruptly. The temperature of the body, as shown by the clinical thermometer, is not increased, which would be the case if inflammatory disease were present. *Lastly*, there is the history of the hysterical tendency, as evidenced by the minor symptoms first mentioned; so that there is rarely any difficulty in arriving at a correct conclusion, whether a malady presenting in a hysterical person is real or the reverse. As a rule, the disorder is, in the mind of the patient, firmly believed to exist; and there is no doubt that the pains complained of are real (although nervous pains), and actually felt by the patient. But in some instances, hysterical persons are fond of making diseases, and will stick pins or needles into the flesh, or swallow them, for that purpose. They will also sometimes refuse food, unless they can obtain it surreptitiously; or they will secrete and swallow blood, or other fluid, so that they may afterwards vomit it up, as if from disease. Most frequently, in all cases of hysteria, the monthly functions are irregular.

Similarly, *hysteric convulsions*, or the *hysteric fit*, is very different from other convulsive affections. There is no insensibility, and the countenance is natural. The patient, if she falls, does not do so heedlessly, but in some comfortable place, and carefully avoids injuring herself. There are convulsive movements of the limbs, which are, however, still partly under the control of the will, and there is often alternate crying and laughing. The fit is generally preceded by the feeling of a ball rising in the throat, and after it there is frequently a copious discharge of light-coloured urine. Hysteria is much more rare in the married than in the single. For distinction from other kinds of fits, *vide* article *Fits*, p. 226.

Treatment.—During the paroxysm the dress should be loosened, plenty of fresh air should be allowed, a fan should be used, and cold water, vinegar, or eau de Cologne may be sprinkled on the face, smelling salts, or the smoke from burnt feathers applied to the nostrils, and the extremities should be well rubbed. If the patient can swallow, a teaspoonful of sal volatile in a wine-glass of water may be administered.

If the seizure is decidedly hysterical, and the person young, strong, and healthy, the mouth and nostrils may be compressed or closed, until efforts to breathe become powerful, and then suddenly let go, which often terminates the fit. In prolonged cases, cold water may be poured from the spout of a kettle on the head. Hysterical persons should not, however, be treated roughly; for it does not follow that, because a person is hysterical, she may not have some other disease. On the other hand, sympathy is misplaced, and will usually make an hysterical person worse. Although hysterical patients cannot altogether avoid their attacks, they can to a certain extent guard themselves against the seizures; and this they should be made to understand, they are expected to do. In the intervals between the fits, the use of good food, good air, and attention to the bowels will generally remedy the hysteric state. If the monthly flow is deficient or irregular, attention must be directed to this condition (*vide Amenorrhœa*, p. 409). Active exercise and cold bathing will always prove powerful adjuncts in the treatment.

In cases in which hysteric paroxysms are unduly prolonged or associated with unusual symptoms, there may be some affection of the urine requiring skilled medical advice. A form of nervous disturbance much resembling hysteria, but of very serious import, sometimes attends albuminuria or Bright's disease of the kidneys.

HYDROCELE signifies a collection of water in the cavity or bag enveloping the testicle, which comes on gradually. It begins from the bottom of the purse, and forms a pear-shaped swelling, smooth on its surface, soft to the feel, free from pain and tenderness, but causing uneasiness from its weight. It may be originated from injuries, or it may occur without any assignable cause. It is distinguished from 'broken belly,' or *rupture*, by never going away, even when the person lies down, which a rupture, unless strangulated, will do; also by the fact that, when the patient coughs, there is no impulse, or 'shake,' given to *hydrocele*, while a rupture moves with the cough. On placing a lighted candle behind a hydrocele, the light may be discerned through the contained water, which is not the case in rupture (*vide Rupture*, p. 532). For this to be well observed, the skin should be firmly stretched over the enlargement. The only curative method is a surgical operation known as 'tapping.'

INFLAMMATION.—Inflammation may be defined as an unnatural excess of vital action, which manifests itself in increased vascularity and sensibility of the part attacked, which may be any part of the body. Inflammation of internal organs is the most dangerous; it produces heat, swelling, and redness from engorgement of blood, attended by pain, increased on pressure. If extensive, the whole system sympathises with the local mischief, and there is fever, quick pulse, generally constipation, and always high-coloured urine.

Unless cut short at first, inflammation goes on till an effusion of liquids takes place in the inflamed part, and what are called *lymph* and *serum* escape from the blood. These matters quickly become *pus* (or matter) and the result is an *abscess* (*vide* p. 44). During the formation of matter, *throbbing* pain takes place, and if the collection is large, there is generally shivering at the commencement. In the first stage of inflammation, if the parts affected can be reached, lint, dipped in cold water and covered with oiled silk, is the best application. But when matter is forming, or has formed, poultices should be applied, and as soon as the presence of matter can be detected either by the fingers, or by the 'pointing' or prominence of the abscess, the part should be pricked with a lancet, and the matter allowed to escape.

Inflammation often leads to *mortification* or *sloughing*, or may cause an ulcer or open sore.

INFLUENZA.—This is a severe epidemic *catarrh*, spreading usually from the north-west towards the south-east, over large tracts of country. The causes of influenza are not fully understood; but, as it occurs periodically, at intervals of years, and then at any season of the year, it is not dependent on cold or sudden vicissitudes of temperature, and must not be confounded with ordinary catarrhal attacks, which occur most frequently at the colder or changeable seasons. The symptoms of influenza, are *first*, those of a very bad cold or *catarrh* (*vide* p. 97), to which are added a sudden, early, and extraordinary subdual of the strength, and great depression of spirits. The digestive organs are also disturbed, the tongue is white, the appetite and taste are lost, and there may be nausea and vomiting. Pains in the limbs and body are also present. The skin, at first hot, afterwards grows moist, and perspires profusely, exhaling a musty odour. There are usually cough, and some degree of bronchial irritation present, and there is always danger of bronchitis, or inflammation of the lungs, or of rheumatism supervening. The mortality from influenza is only 2 per cent. of those attacked; but the number attacked when an epidemic occurs, being enormous, the total mortality is large. The very young and the very old bear influenza least favourably, owing to the great debility it occasions, and the liability to chest affections. The duration of the disease may be from four or five, to ten or twelve days. Like all other epidemic maladies, influenza is localised by overcrowding, and by low, damp, unventilated, and other unsanitary conditions.

Treatment.—There are no known means by which influenza can be prevented. When the disease is present, the patient should be placed in a cool, well-ventilated room, but free from draughts. If the bowels are confined, Recipes 1 and 2 may be given. Then, citrate of magnesia (*vide* p. 14) may be used to subdue feverishness, and Recipe 31 to meet cough or bronchial irritation. After the first day or two, the diet should be nourishing and liberal; elderly persons also requiring a moderate amount of stimulants, which may be port wine or brandy. If bronchitis, inflammation of the lungs, or rheumatism occur, the treatment given for those affections should be pursued.

JAUNDICE.—In this disease the skin becomes greenish or yellow, which has led to the malady being often spoken of as *the green* or *the yellow jaundice*, as if there were two distinct kinds. The difference of colour, however, simply depends on the amount of bile contained in the blood, and does not signify a different affection. The whites of the eyes assume a similar greenish or yellow tint; vision is often affected, everything appearing yellow; the bowels are confined, the fæces are white or clay-coloured, but the urine is of a deep yellow; the skin generally itches, and there is a bitter taste in the mouth, with coated tongue, and nausea, especially in the mornings. The cause of all these appearances is the presence of bile in the blood. From some one of various causes the bile is not passed by the liver into the bowels as it should be, but escapes into the blood, and is partly passed away by the kidneys through the urine. The jaundice condition may be either *permanent* or *temporary*.

Temporary jaundice may be the result of congestion or inflammation of the liver, or may arise from a gall stone in the bile duct, preventing the outward passage of bile. It also occasionally occurs during fevers, without any readily assignable reason. In treating any variety of jaundice, the cause must first be sought, and remedies applied according to the malady of which the jaundice is a symptom (*vide Gall Stones*, p. 230). If no other cause of the jaundice is clearly evident, it probably depends on temporary *catarrh* of, or congestion about, the bile ducts, and Recipes 1 and 2 may be taken every night and morning; while a mustard poultice should be applied daily, or as often as can be borne, over the liver. The food should be light and nutritious, and stimulants should be avoided.

[In cases of jaundice it will be advisable for the patient to procure Recipe 9, to be taken at night, and Recipe 6 for the morning; to be repeated every or every other day, according to the effect produced. After the bowels have been well purged, the draught and pills may be taken every other night and morning. Recipe 52 should also be taken by a weakly person, or if dyspepsia is present; and Recipe 53 by a stronger person, when there is no dyspepsia, three times daily. When constipation exists, a course of Carlsbad salts may be used.]

Permanent jaundice depends on some serious or organic disease of the liver or other internal organ, and the disease thus producing the jaundice generally ends fatally.

JOINTS, INFLAMMATION OF.—Inflammation of the joints occurs as a consequence of rheumatism, gout, and scrofula. It is to scrofulous inflammations of the knee and hip that the term 'white swelling' has been commonly applied. But inflammation of a joint sometimes occurs without any assignable cause, or without any evident connection with other maladies; or as the result of accident or injury. The joint affected becomes swollen, tender, and painful, and if large, as the knee, there is also much feverishness. Leeches, cold lotions, or fomentations, and rest are the appropriate remedies. If stiffness remains after the acute stage, liniments, plasters, and bandages should be used.

Affections of the *hip* and *knee* joints are sufficiently common, and important, to demand separate and special description.

JOINT, HIP-, DISEASE OF THE.—Usually occurs to children, who have inherited a scrofulous taint. It frequently arises without any assignable exciting cause, but is often attributed to slight accidents. The earlier symptoms are trifling, and therefore often remain undetected, or unattended to. If, after a slight injury or twist, a child complains of pain in the hip, or *in the knee*; if the child limps when tired, or if it drags one leg, a suspicion of incipient hip-joint disease should be aroused. The limb should be carefully measured, both when the child is standing up, and when lying flat on the back. If one leg appears *slightly* longer than the other, the suspicion of hip-joint disease of the limb, thus *apparently* lengthened, is materially confirmed. For, in order to take the weight of the body off the affected joint, when the child 'stands at ease,' he bears upon the sound limb, throws out the sound hip, and *lowers* that of the opposite side. If, when the child lies on the back, the lengthening of the limb is still evident, it depends on effusion of fluid within the joint, which mechanically presses down the limb, rendering the existence of disease beyond doubt. Even if this apparent, or real lengthening, cannot be detected, a suspicion of hip disease may be usually confirmed by the following tests. If the projecting bone of the hip-joint is smartly tapped, or if the heel of the foot is struck, when the leg is straight, pain, more or less acute, will be felt in the affected hip-joint. As the disease progresses, the child becomes less able to walk, the lameness increases, and at last he is unable to stand. The buttock becomes flattened from wasting of the muscles, and the joint grows tender; while movement of the limb is very painful. Instead of the limb being lengthened, it now becomes gradually shortened; the knee of the affected limb becomes directed over the opposite thigh, the foot is turned inwards, abscesses form, and more or less hectic fever (*vide* p. 223) prevails.

Treatment.—The most important point is perfect and early rest of the affected limb. On suspicion of hip disease the child should be kept on the bed; and if there is certainty of disease, motion of the limb should be prevented by the use of a long, well-padded splint, as figured at p. 505, for fracture of the thigh. The bowels should be kept open, and feverishness subdued by citrate of magnesia (*vide* p. 14). Quinine (Recipe 17) will also be generally advisable. When the joint becomes tender, fomentations, or even leeches, will be required; and if matter forms, it must be evacuated by puncture with a lancet. These phases of the disease require, however, treatment by a skilled surgeon. Here it will suffice to mention the great importance of good hygienic conditions, and of suitable constitutional treatment.

JOINT, KNEE-, DISEASE OF THE.—This also mostly occurs in scrofulous children, and has obtained the name of 'white swelling,' because, although the joint may be considerably enlarged, and the parts inside much diseased, the skin retains a white colour, and gives little indication of the inflammation underneath. It is generally attributed to some injury, as a fall or sprain, but the real secret of the malady is constitutional, and the injury can only be regarded as an exciting or determining cause of a constitutional taint showing itself in a particular part of the body. In white swelling, the pain and enlargement are at first trifling, causing merely stiffness of the joint, and uneasiness only when moving or attempting to use it; so that the disease often makes considerable progress before it is recognised. Afterwards the pain is greater, and generally worse at night, but it is never so severe as in various other affections of the joint. The malady, if not checked, usually terminates, like disease of the hip-joint, in the formation of abscess, and in disease of the bones of the joint. Stiffness or swelling or tenderness of the knee or hip joints, or 'limping,' occurring to children, should lead to immediate application for medical advice. In the meantime it should be recollected that a diseased joint requires absolute rest, although fresh air should be afforded to the patient. The diet should be light but nourishing.

KNOCK-KNEE.—Knock-knee generally comes on about the age children begin to walk. It is also found in growing boys and girls, who stand too much, or who carry heavy weights, especially if of naturally delicate constitution. Usually, one knee is more affected than the fellow. There is sensation of weakness and aching pain. Like *flat-foot* (*vide* p. 110) it is often due to mechanical yielding of the parts concerned. But it may also be associated with a rickety condition of the system (*vide* p. 319). To cure the complaint, the weakened ligaments must have time and rest given them to contract and grow strong. Exercise should be abridged, and supports of the lightest possible description should be procured. The diet must be nutritious.

KIDNEYS, INFLAMMATION OF THE.—This is known by the pain in the loins, usually on one side, but on both if both kidneys are affected. The pain strikes downwards towards the groin, and the testicle is often drawn up from spasmodic action of the muscles. The pain is of a dull, diffused, deep-seated character, increased by firm pressure, by coughing or sneezing. It is also increased by straightening the leg of the affected side, and the patient lies on his back, or perhaps on the affected side, with his leg or legs drawn up. There is also often numbness in the inner part of the thigh. The urine is scanty, and voided painfully at short intervals, and often becomes bloody. There is usually a considerable degree of feverishness, and the bowels are mostly confined.

The causes of inflammation of the kidney are cold, external injury, long-continued and violent exercise of the muscles of the back as in riding; gravel; diseases of the bladder and urinary passages.

Treatment.—Leeches to the number of one for every year of age up to thirty should be applied over the most painful part; the bowels should be well opened by Recipes 1 and 2; medicines encouraging perspiration should be given, as citrate of magnesia (*vide* p. 14), and the patient should drink freely of barley water, rice water, tea, or linseed tea. A hot hip-bath should be given daily, and pain at night may be alleviated by Dover's powder or chloral. At the same time perfect rest should be enjoined, and the diet should consist of nourishing broths and gruels.

Inflammation of the kidney often lays the foundation of the condition described as 'Bright's Disease' (p. 86).

LARYNX, INFLAMMATION OF THE.—The larynx is the upper portion of the windpipe, containing the parts forming the organ of voice. Inflammation of this part often occurs, either in conjunction with common sore throat or inflammation of the tonsils, or otherwise without such complication. It may be brought on by cold, or by too great exertion of the voice. It may occur to such an extent as to produce mere *hoarseness*, or it may go on to total loss of voice, and ultimately cause suffocation. When inflammation of the larynx is severe it is a dangerous disease. There is pain and fever, tightness about the throat and loss of voice ; respiration and swallowing are difficult; there is urgent fear of suffocation, sleeplessness, gasping for breath, and towards the end convulsions. The throat may be seen red and swollen within, and on pressing the tongue downwards the upper part of the larynx or 'epiglottis' may be seen erect, and inflamed (*vide* p. 483). The small aperture into the windpipe is, from the swelling of the parts, more or less closed, thus preventing the entrance of air.

Treatment.—When the malady is slight, only presenting as simple *hoarseness*, or loss of voice, occurring, perhaps, chiefly in the morning, avoidance of cold, especially at night, flannel round the throat, or a mustard poultice, the feet in mustard and water at night, and an expectorant mixture (Recipe 31) may be sufficient. But when the disease is severe very active measures are required. Leeches should be applied to the *upper part of the chest*—one for each year of the patient's age to the number of thirty. The steam from hot water should be frequently inhaled, and hot moist sponges should be applied to the throat. Dover's powder should be given in five-grain doses three times a day, and if necessary the bowels should be moved by Recipes 1 and 2. Throughout the treatment the patient is to be kept from talking, and be in a warm room free from draughts, the temperature of which should be maintained as equable as possible, and not be allowed to sink below 80° Fahrenheit. The air should also be rendered moist by the occasional introduction of the steam from a kettle of boiling water. The diet must consist of fluids, as strong soups and broths, and no stimulants should be allowed. But it often happens that the patient is unable to swallow even the fluid diet which is most proper.

[As soon as possible calomel and opium (Recipe 43) should be obtained and given instead of the Dover's powder mentioned above. The calomel should be continued until there is a metallic taste in the mouth, or slight soreness of the gums. If the patient is a strong, robust person, it will also be advisable to give the tartar emetic mixture (Recipe 33).]

LEPROSY.—Leprosy is a very common affection, especially among the lower classes, in India, but Europeans do not suffer much from it. The form most frequently met with comes on with loss of sensation in the fingers and toes. After a time these parts become curiously nodulated. The skin becomes thickened and presents small prominences, varying in size from a pin's head to a walnut; sometimes the whole body is affected. Ultimately the parts ulcerate, the ulcers gradually eating away the flesh and bones, so that the fingers and toes are lost. There is no cure for the disease, but its progress may be delayed by good diet, fresh air, and tonics, the best of which is arsenic. Gurjon oil is also much recommended. This is a wood oil, and is used mixed with lime-water, both internally and externally. The dose of gurjon oil is two drachms twice daily, with an equal quantity of lime-water. One part of the oil, with three of lime-water, must be rubbed into the whole body and limbs for two hours twice a day.

LIVER, DISEASES OF THE.—The liver is the largest organ in the body. It is situated in the right side, stretching across to the left. It commences as high as the fifth rib, in a line immediately below the nipple, while its lower border comes down as low as the lower margin of the ribs. Its size, however, varies a good deal in health, and in women who wear tight stays it may come down an inch or two lower. Its function is the secretion of bile, a fluid necessary to digestion, by which is effected the conversion of the food prepared by the stomach into material or 'chyme' required for the nourishment of the body. It also prepares the materials which are destined to maintain animal heat by the slow combustion which a portion of the blood undergoes in the lungs. A third purpose of the liver is to remove effete or useless matter from the blood, *i.e.* to purify that fluid; and this effete matter is the main agent in the formation of the contents of the bowels into a suitable condition and consistence for their removal without injury. Whenever the liver is disturbed or disordered, there cannot be health in the rest of the system. Next to the stomach itself, it is the part of the body most directly influenced by food or drinkables. It was at one time the vulgar custom to refer nearly all diseases to the liver. This being found erroneous, disorders of the liver have by some been regarded as trivial. In temperate climates the truth lies between the two extremes. But in tropical climates, very many more deviations from health, both of the general system and of particular organs, depend on primary disorder of the liver. The stomach, and bowels especially, often present symptoms, which careful investigation discovers to have their seat and origin in the liver.

The principal diseases affecting the liver are—1. *Biliousness*; 2. *Congestion*; 3. *Acute Inflammation*; 4. *Chronic Inflammation*; 5. *Abscess*; 6. *Hepatalgia*, or *Neuralgia*.

1. BILIOUSNESS, OR BILIOUS ATTACK.—This may depend on some irritating material taken into the stomach, producing vomiting and disorder of the liver and bowels. Or it may depend on a continued course of high and improper living, which, for some time taken with impunity, at length induces that condition to which the term 'bilious' is commonly applied. Or otherwise, biliousness may be occasionally symptomatic of the state of the liver next described under

the term 'congestion.' Biliousness may be evidenced by the *bilious headache*, described at p. 244. Or it may assume the form of *bilious colic*, described at p. 112. In the latter case the ordinary bilious attack is characterised by feelings of faintness and nausea; then vomiting occurs, first of the contents of the stomach, next of acrid sour bile. This vomiting is sometimes very severe, continued, and distressing, and is probably accompanied or followed by griping pains in the bowels, succeeded by several bilious stools. If there is retching, without free evacuation of the contents of the stomach, the best treatment is an emetic of mustard and water (Recipe 77) to bring up offending matter, and to clear the gall bladder of bile. If the succeeding purging is not severe, Recipes 1 and 2 should be taken when the vomiting subsides. Effervescing drinks will always be grateful, and if much pain is complained of, a mustard poultice may be applied to the pit of the stomach, and after vomiting has ceased a dose of chlorodyne may be given.

2. CONGESTION OF THE LIVER.—This term implies a distension of some part, or of the whole, of the organ. Or sometimes the gall bladder and gall ducts only are implicated, which is then spoken of as *catarrh* of the bile ducts. The causes are the influence of hot climates, which throws a greater amount of secretory work on the organ, some of the effete material, which would in temperate regions pass away by the lungs, being removed from the system by an increased flow of bile; sudden change of temperature and exposure to chills and cold; repeated cold stages of remittent and intermittent fever, during which the blood is driven forcibly into internal organs, which thereby become unnaturally distended or stretched; excessive eating and drinking; overfull and too stimulating diet; stimulating liquors, especially those containing much sugar; solar exposure; residence in crowded houses; a sedentary life; too much sleep.

The symptoms are coated tongue, bad taste in the morning, depression of spirits, defective appetite, headache, bowels acting irregularly, stools dark and depraved, or sometimes light in colour, nausea, a sense of weight and fulness in the right side, and pain or uneasiness in the tip of the right shoulder, or in the shoulder blade.

Treatment.—Recipes 1 and 2 should be taken, with care and abstinence in diet. Mustard poultices should be applied over the liver, and moderate exercise short of fatigue should be taken. Horse exercise is advisable.

[If the above treatment is not successful, it will be desirable for the person to take several mercurial purges, as Recipe 8, followed by Recipe 6. In two or three days after the bowels have been frequently opened Recipe 7 will be useful. Iodine paint may also be applied daily over the liver, until the skin becomes tender. In chronic cases, Recipe 53, if there is tendency to jaundice, and Recipe 54, if there is no tendency to jaundice. The nitro-muriatic bath should also be used (Recipe 113). The use of Friedrichshall, or Hunyadi Janos, or Carlsbad mineral waters, will also be beneficial.]

3. LIVER, INFLAMMATION OF THE.—The causes of inflammation of the liver are precisely similar to those of congestion. Congestion is, indeed, the first step towards inflammation, and, if not checked, will often terminate in the latter malady. Inflammation of the liver is also frequently connected with dysentery, appearing then to arise from absorption of dysenteric material secreted in the intestines, by the veins passing between the latter parts and the liver.

The symptoms of inflammation of the liver are those of congestion in an aggravated degree. There is pain in the right side, increased by pressure under the ribs, by a long breath, by coughing, by lying on the left side. There is also pain in the shoulder, and often a dragging sensation at the pit of the stomach. The whites of the eyes may turn yellow, the urine is highly coloured, there is nausea or vomiting, there may be either costiveness or diarrhœa, and the stools may be dark or light in colour. The disease is generally marked by febrile symptoms and shivering, but in some cases there is little or no febrile action. Sometimes it may be distinctly made out that the liver is enlarged, but often this is not the case. Inflammation of the liver is sometimes accompanied by dysentery.

When the pain is very acute, with much fever, the covering of the liver will be chiefly involved in the inflammation. If the bladder is irritable, and the pain more towards the loins, the under part of the liver is most affected. When vomiting is a prominent symptom, with perhaps hiccup, and pain at the pit of the stomach, that part of the liver nearest the former organ is most implicated.

Treatment.—Inflammation of the liver occurring in strong, robust Europeans, especially if newly arrived in the tropics, may require bleeding from the arm; or more usually, the application of leeches to the right side over the organ. Such measures, however, are not very frequently necessary, and should not be attempted unless under medical supervision. When the symptoms of inflammation of the liver, as above detailed, occur, it will be advisable, in the absence of medical advice, to administer a purgative, as Recipe 1, followed by a saline draught (Recipe 2), four hours afterwards. If the bowels are costive, and there is no dysenteric complication, these medicines should be repeated every or every other day, so that a continued free action may be secured. But if there is tendency to dysentery, after the bowels have been once thoroughly cleansed, it will be advisable to give ipecacuanha and Dover's powder (Recipe 39). Mustard poultices should be applied daily, or as often as can be borne, over the liver, and the diet should be very light and easily digestible. Milk, broth, beef-tea, toast and biscuits, may be taken, but no stimulants should be given, as they tend to increase the mischief. Effervescing solutions may be taken with benefit, as they allay thirst and sickness.

[For inflammation of the liver without accompanying dysenteric symptoms, occurring in a moderately healthy and robust person, it will be desirable, when the materials are available at the onset, to adopt the tartar emetic treatment, as soon as the bowels have been once thoroughly moved by the means indicated above. Two grains of tartar emetic are to be thoroughly mixed in a mortar with two drachms of nitrate of potash and the mass divided into eight powders, one of which should be given in two ounces of water every hour. If this medicine, as is sometimes the case, acts on the bowels, the repetition of the purgative doses (Recipes 1, 2) will not be required. If the tartar emetic produces distress by exciting great nausea or vomiting, or too much purging, or great depression, the proportion should be reduced to one grain in the eight powders. The latter should be given every hour until local pain and tenderness subside. These medicines promote both perspiration and the secretion of urine, thus tending to cool the body and diminish fever. They also lessen the force of the circulation and reduce the inflammation. They also render the blood alkaline, a condition antagonistic to the inflammatory state. But if the smaller proportion of tartar emetic, as above mentioned, should produce distressing nausea, or vomiting, or purging, or in any case when pain and tenderness subside, other remedies less powerful, but still calculated to promote perspiration and the secretion of urine, (Recipes 39 and 73), should, if available, be given every three hours, but at different times. If, after the subsidence of the acute symptoms, pain or tenderness continue, a blister should be applied, and podophyllin with nitric acid (Recipes 7 and 12) should be given, the latter being most useful if the skin is dry and the bowels constipated.]

4. CHRONIC INFLAMMATION OF THE LIVER.—This condition may be a sequel of the acute form, or it may arise from repeated attacks of congestion, or it may come on so gradually that it is often long unattended to. The first symptoms are sensation of weight in the right side, or a feeling as if a lump were there, occasional pains of a shooting character, with loss of appetite, flatulence, and other dyspeptic symptoms. These symptoms are very similar to those of congestion, but instead of disappearing, as temporary congestion does, they become permanent. Then the liver becomes enlarged and may be felt below the ribs. From the pressure of the enlarged liver upwards, there is also cough, difficulty of taking a long breath, and pain in one or both shoulders. The countenance becomes sallow, the skin dry, the patient de-

sponding and debilitated. The stools, which may be loose or the reverse, are generally clay-coloured, while the urine is often high-coloured from bile. Sometimes the person becomes jaundiced.

Treatment.—Saline aperients in the morning, as Recipe 2, and great care in diet, with avoidance of stimulants, are the principal means of relief. But should the disease persist, as it probably will, change to a temperate climate must be taken.

[Nitro-muriatic acid (Recipe 54), taraxacum and acid (Recipe 53), podophyllin (Recipes 7 and 12), iodide of potassium (Recipe 45), all prove useful in the condition above described; sometimes one prescription, sometimes another, agreeing best with particular individuals, and they may be tried in the order named. The nitro-muriatic bath (Recipe 113) should also be used. But any kind of medicine will only prove palliative. For a radical cure, change to a temperate climate is necessary.]

5. ABSCESS OF THE LIVER.—Abscess of the liver originates —1. *Suddenly, during an attack of congestion, or acute inflammation.* 2. *Gradually, during chronic inflammation.* 3. *Insidiously, without previous inflammation.* 4. *During the progress of dysentery.*

1. *Suddenly, during an attack of congestion, or acute inflammation.*—If during such conditions severe shivering occurs, followed by cold sweats, obstinately furred tongue, scanty and high-coloured urine, depositing much sediment, fever increased at night, and diarrhœa, there will be every reason to fear formation of abscess.

2. *Gradually, or during chronic inflammation.*—The most frequent manner, however, in which abscess manifests itself is after the prominent symptoms of acute inflammation have been relieved. The patient does not recover health, remains weak and languid, and after a variable period experiences occasional chills with feverishness towards evening. This soon assumes a hectic character, and is accompanied by

a tongue furred in the centre, red at tip and edges. Weight and uneasiness are experienced in the right side, and the palms of the hands are dry.

3. *Insidiously, or without previous inflammation.*—But liver abscess sometimes occurs without any previous decided symptoms, or there may be simply loss of flesh, or a vague sense of uneasiness or obtuse dull pain, or feeling of weight in the side, with perhaps slight cough. These anomalous feelings are signs often scarcely appreciable by the too frequently doomed patient; or, if observed, are considered too trivial to induce application for medical advice. Often it is not until shivering and cold sweats, with swelling of the liver, appear, that the serious nature of the disease is recognised. A medical officer of repute states, 'I have known persons die of abscess of the liver who never in life had experienced any of the symptoms.' The necessity, therefore, of paying attention to even slight symptoms pointing in such direction is evident.

4. *During the progress of dysentery.*—That a very large proportion of fatal cases of dysentery are complicated with liver abscess is an established fact. And the connection has been attributed to absorption into the liver of morbid matter generated during dysentery. If during the progress of dysentery, the languor, emaciation, and evening fever, are greater than can be accounted for by the violence of the dysentery, and if the condition of tongue before noted appears, with uneasiness and weight in the side, there will be little doubt that abscess has occurred. A fit of shivering in addition would render the matter certain.

When abscess has formed in any of the modes detailed, it may appear as a swelling in the side or near the pit of the stomach, when it is said to 'point' externally; or it may burst into the stomach and be emptied by vomiting; or into the bowels, and the matter may pass away with the stools; or into the lungs, when the contents may be coughed up; or otherwise into the cavities of the chest or bowels, from which there is no escape.

If the abscess points externally, in the absence of medical aid and of certain instruments used in such cases, the skin must be allowed to become red, when it may be opened with a lancet and poultices applied. Then the abscess, if not large, may discharge its contents, contract, heal, and the patient recover. In other instances in the absence of medical aid and of particular instruments little can be done except supporting the strength of the patient by good diet, and relieving pain by chloral or by opium or its preparations.

6. Hepatalgia, or Neuralgia of the Liver.—The liver, as is the case with many other organs, is subject to a nervous affection. The symptoms are slight uneasiness, or sense of weight in the side, so slight, indeed, as to be forgotten when the person is occupied. There is also uneasiness in the shoulder, which feels tired, as though from long exertion. These pains may be absent for several days, again returning after exposure to cold, or even without any probable cause. Sometimes sharp twitches are felt in the side, which the patient may state to be tender. But examination of the part does not confirm this, or, in fact, detect anything unnatural. The mind often dwells on this uneasiness, and the individual is in constant dread of some serious disease appearing. There is also languor, want of resolution, and despondency. But the appetite and digestion are good, and the patient sleeps well.

These symptoms may recur for years, and may at first be regarded with suspicion, as indicative of insidious abscess. When, however, months elapse during which the individual enjoys good health, and probably gains flesh, the neuralgic character of the affection becomes, even to the patient himself, undoubted.

Treatment.—A mustard poultice will relieve the pain temporarily, and tonics, as quinine (Recipe 17), will probably prove beneficial. Medicines, however, are of little avail; occupation of the mind, and moderate exercise, are the best remedies.

[In some instances of this affection it may be desirable to apply a blister over the liver, when the pain is more than ordinarily complained of. For such cases, the solution of arsenic (Recipe 27), taken daily for some weeks, is the best tonic.]

LUMBAGO.—This term implies severe pain and tenderness of the muscles of the loins, aggravated by motion, often preventing the patient from walking, and frequently occurring suddenly. It is, in fact, a variety of rheumatism. It generally arises from cold. It is distinguished from disease of the kidneys, in which pain occurs in the loins (*vide* p. 271), by the absence of frequent desire to make water, and from there being no bloody matter nor usually other deposit in the urine.

Treatment.—Broadly speaking, it may be said that internal remedies are of little use for lumbago. Local applications are the best remedies, and as a rule they do most good when applied hot. Mustard poultices may be applied; or the back may be well rubbed with hot 'grass oil.' Some powdered sulphur, wrapped up in a flannel belt, and worn habitually, is by many praised as a local remedy. Ironing the back with a hot flat iron, a piece of brown paper intervening, is often beneficial. When the urine is scanty and high-coloured, becoming turbid on cooling, eight grains of nitrate of potash (*vide* p. 27) may be taken every three hours. When the pain is very distressing at night, Dover's powder or chloral may be taken.

[Turpentine and salad oil in equal parts; a belladonna plaster; ammonia and oil in the proportion of one-third ammonia; iodine paint; chloroform and opium liniment (Recipes 89, 90), are all sometimes useful. In recent cases, before the lumbago has become confirmed, colchicum with alkalies (Recipe 51) should be taken. If the patient is feverish, Recipe 72. Galvanism, or Faradization, or wearing a Pulvermacher's galvanic chain, may also be tried. In severe cases a surgeon would probably use acupuncture needles, or inject morphia beneath the skin.]

LUNGS, INFLAMMATION OF THE.—This disease, technically known as *Pneumonia*, is ordinarily the result of cold. It frequently occurs during attacks of fever of almost any variety, and is more especially prevalent among natives in the colder weather of the Northern India districts, and at hill stations. The disease usually commences as a severe cold, with chills and flushes of heat. Or it may begin as an attack of bronchitis (*vide* p. 87). There is a short, dry cough, afterwards attended with a thin frothy very tenacious expectoration, which at a later period becomes *rusty* coloured, or streaked with blood. This coloured character of the expectoration is, indeed, in adults the great distinguishing characteristic between *bronchitis*, or inflammation of the tubes leading to the lungs, and the still more dangerous *pneumonia*, or inflammation of the substance of the lungs. There is no acute pain attending this disease, unless it is also, as often happens, combined with some degree of *pleurisy* or inflammation of the covering of the lungs, when there will be a 'stitch,' or stabbing pain in the side, or probably under the nipple, more or less acute, as the covering of the lungs is affected in a lesser or greater degree (*vide Pleurisy*, p. 304). But whether there is this acute pain, denoting the pleura to be affected or not, there is always a deep-seated, dull aching in the chest, and the respiration is frequent and short, rising from fourteen or sixteen (the number of respirations in the recumbent posture during health) to forty or upwards; while the temperature of the body, as may be tested by the clinical thermometer, rises to 104° or 105° Fahr. In favourable cases the disease may decline on the fifth or sixth day, or it may be protracted to a fortnight. As a rule it may be stated, that if the mean of the bodily temperature, taken several times daily, is not above 104° Fahr.; if the pulse does not rise above 120 beats in the minute, and if the respiration does not rise above 35 in the same period, the patient, if otherwise healthy, will certainly begin to get well in eight or ten days. In unfavourable cases, on the fourth or fifth day, the breathing becomes more frequent and difficult, the pulse quicker, the skin hotter, and delirium, followed by complete stupour, ensues.

There are during the progress of this disease certain physical signs to be discovered by listening to the breathing. The parts most generally affected are the lower part of the lungs, and by listening below the shoulder-blades at the commencement of the disease, a peculiar creaking noise will be heard with the breathing, very similar to that produced by strongly rubbing the hair near the ears between the finger and thumb. This is caused by the passage of air through the sticky glutinous fluid secreted in the lungs. In the more advanced stages of the malady, the lungs, where chiefly affected, may become hardened, and therefore when the chest or lower part of the back beneath the blade-bones is tapped with the fingers, a more or less dull sound results, instead of the clear resonant sound of health.

Inflammation of the lungs, instead of presenting all the prominent and characteristic symptoms noted, sometimes comes on very insidiously. This is especially the case with natives of India, with children, and with old people. Also during the progress of remittent, typhoid, or other fevers. Natives of India thus suffering frequently die from affection of the lungs, without having shown any prominent symptoms of the disease.

Treatment.—The patient should remain in bed, and the atmosphere of the room should be maintained equable, free from draughts, and moist from the steam of boiling water. The great thing is to avoid variations of temperature and chills to the surface of the body. The patient should not be allowed to talk much, and movement, which often causes much distress by accelerating the breathing, should as much as possible be avoided. In the early stages of the malady, if the patient is young and strong, and if there is much pain, leeches, one for each year of the patient's age up to thirty in number, may be applied near the most painful spot. When the leech-bites have ceased to bleed, a large hot linseed-meal poultice, or spongio-piline moist with hot water, should be applied to the chest; but care must be taken that the bleeding does not recommence on applying heat, as too much blood may in that way be drawn, and tend to exhaust the patient and make him faint. After the linseed poultice, which may be repeated daily, cotton wool should be applied. As medicine, ipecacuanha wine and paregoric (Recipe 31) should be given every three hours. The diet should be light and nutritious, as milk, light pudding, eggs, beef-tea, broth, and jelly. For previously strong and healthy persons, stimulants will seldom be required, provided the case progresses favourably; but if signs of exhaustion occur, brandy should be given freely. A rapid pulse, amounting to 120 beats in the minute, respirations above 35 in the minute, or delirium, are indications that stimulants are necessary. In weakly or elderly people, it will sometimes be desirable to treat the case altogether with stimulants from the first, omitting leeches, and adding fifteen minims of aromatic spirits of ammonia to each dose of paregoric mixture. Similarly, when inflammation of the lungs occurs in very old people, a stimulating plan should be adopted.

[If the patient is strong, robust, and young, it will be more advisable, after the leeching, to give tartar emetic mixture (Recipe 33). The tartar emetic mixture, by its effect on the circulation, maintains the influence of the leeches, diminishes the force of the circulation, and also acts on the skin, promoting perspiration; and thus lessens the difficulty of breathing.]

INFLAMMATION OF THE LUNGS, or PNEUMONIA, OCCURRING IN CHILDREN, is not uncommon, and demands special notice. As remarked above, *pneumonia* in children occasionally comes on very insidiously, and may be unsuspected or overlooked. This is most likely to be the case when the lungs become affected during the progress of various diseases, as measles, atrophy, fevers, and bowel complaints. When inflammation of the lungs in children arises from cold, as it often does, and is not a consequence of, or connected with, and masked by, some other malady, the symptoms are better marked. When the disease is commencing, there is feverishness and a dull heavy expression, soon followed by hard dry cough, parched lips, flushed countenance, furred tongue, hot skin, high-coloured urine, and short, panting, oppressed breathing, the nostrils dilating with each inspiration. The mouth is instinctively kept open, so that more air may enter, and this tends to make it hot and dry. The number of respirations may rise from 30 to 50 per minute; the pulse to 150, or even higher; and the temperature to 105° or more. This condition in children is very likely to be mistaken for simple bronchitis, and the more grave nature of the case may not be understood. The following contrast, therefore, of the symptoms of pneumonia and bronchitis is added:—

Bronchitis; or, Inflammation of the Air Tubes leading to the Lungs.	*Pneumonia; or, Inflammation of the Lungs.*
Skin, warm and moist.	Skin, hot and dry.
Mouth, warm and moist.	Mouth, hot and dry.
Breathing hurried, with wheezing.	Breathing, short and panting, unaccompanied by wheezing, although a slight crackling sound may be heard.
Cough, loud and noisy.	Cough, hard, short, feeble.
Expectoration, if coughed out, white and glairy.	Expectoration, if coughed out, rusty and frothy.
Child, cross and fretful.	Child, dull and heavy.

Treatment.—If necessary, the bowels should be loosened by castor oil or senna tea, after which Recipe 31 should be given in doses according to age. Hot linseed-meal poultices should be frequently applied over the whole chest (*vide Bron-*

chitis, p. 91). If after two or three days the child is low and feeble, small quantities of wine and water may be allowed. All through the illness the patient should be encouraged to take broths, jelly, milk, or other digestible fluid food; for the disease is one rapidly producing exhaustion in children, which should be early guarded against. The atmosphere of the chamber should be maintained moist, and at an equable temperature, in India about 80° Fahr., if possible both day and night. But whatever the temperature may be, it should be *equable, and the colder atmosphere of the night should be guarded against*, a very slight fall of temperature being sufficient to aggravate the malady.

MEASLES.—This is a contagious eruptive fever, which usually attacks early in life, and seldom occurs more than once to the same person. The period between exposure to infection and the commencement of the symptoms is from ten to fourteen days. The malady commences with feverishness and cold in the head, or 'catarrh.' The eyes are red, sore, and watery, the throat may feel sore, and there are fits of sneezing, with cough, and probably pains in the limbs. At the end of the third day, or beginning of the fourth day of the above symptoms, the rash begins to appear, first on the forehead, face, and neck, then on the trunk, and lastly on the arms and legs. The rash at first appears as small round red velvety-like spots, somewhat resembling flea-bites, but not feeling raised above the surface of the skin. These extend and merge into each other, assuming semicircular or crescentic outlines of a crimson colour, and slightly raised above the surface of the skin. If pressure is made with the finger, the eruption disappears, returning when pressure is removed. The fever and cough continue, but the latter becomes loose. Three or four days after its appearance the eruption begins to fade, first on the face, then on the limbs. In about two days it disappears with scurfiness of the skin. The fever does not diminish temporarily on the appearance of the rash, as is the case in small-pox, but continues until the fading of the rash commences, when it gradually subsides. If the temperature rises above 103° the case must be regarded as a severe one.

In some severe cases of measles there is accompanying bronchitis, or even inflammation of the lungs, when symptoms present as described under such heads. In other cases the cough continues after the eruption is gone, and often there is some delicacy of the chest, from which the patient is long in recovering.

The principal distinctions between the earlier stages of measles and of small-pox, scarlet fever, or roseola, with all of which at the commencement, measles may be confounded, are as follows:—Measles is known by the catarrhal affection, or appearance of a cold, with which it is ushered in, and by the crescentic peculiarity of form and crimson colour of the rash, which first appears as red spots, not raised above the surface of the skin. In small-pox there are no catarrhal symptoms, and there are generally vomiting and pain across the loins before the rash comes out, which shows as raised red spots. Scarlet fever begins with a sore throat, and the vivid scarlet rash appears earlier. In roseola, there is no prior cold, or watering of the eyes, and the rash appears suddenly, in patches of various sizes and shapes. For further distinctions *vide Scarlet Fever*, p. 322; *Small-pox*, p. 349; and *Roseola*, p. 334.

Treatment.—Measles as a rule is a mild disease, and the great majority of cases recover; but this should not lead to neglect of persons, and especially of children, suffering from the malady, for the affection is not free from danger. There is no drug by which the disease can be cured, and therefore attention must be principally directed to those means by which the patient may be most relieved, and by which the complication of chest affections may be avoided. In the first place the patient should be kept indoors—if a bad case, in bed—as this is the best method by which a more equable temperature may be maintained, draughts avoided, and tendency to bronchial affection or to inflammation of the lungs lessened. While great care is taken that the patient should not be exposed to draught and chill, the room should be airy and well ventilated. The room should also be darkened, as the eyes are sensitive and strong light is unpleasant. Dryness or tingling of the skin, may be relieved by bathing with tepid water, taking care that only one portion of the body is exposed at one time. In the case of children it is generally advisable to give a hot bath at the onset of the disease, then dry the surface of the body and put the child to bed directly. If the necessary precautions are used no chill need be feared, and the hot bath will probably tend to bring out the rash. If the children are dirty this is the more needful, both for the sake of seeing the rash clearly and to enable the skin to perform its proper functions. At first no solid food will probably be cared for, but the patient is always thirsty and may drink milk and water, toast water, chicken broth, and lemonade or tamarind whey (*vide* p. 696). If the bowels are confined they should be acted upon by castor oil or senna, and citrate of magnesia may be given to diminish feverishness. In some cases it may be necessary to give an emetic of ipecacuanha wine, to assist the expulsion of the phlegm which accumulates in the air-passages. If the breathing becomes hurried, a mustard poultice or the mustard leaf, or for young children a linseed-meal poultice, should be applied to the chest. As a general rule stimulants are not desirable, but in cases where there is much exhaustion, a little port wine may be allowed. If cough continues after the rash is gone, it should be treated as ordinary bronchitis. Rubbing the hands and feet with salad oil will relieve the sensations of heat and tightness, produced by the rash. Sometimes the eruption suddenly disappears; in this case there is great depression and distress. A warm bath will generally revive the eruption and afford relief.

It should be recollected that measles is a very contagious malady, and during the illness all offensive *excreta* or dirty linen should be immediately removed and disinfected. In short all the rules given regarding disinfection at p. 605 should be carried out. Measles is most contagious when the rash is out, but it is not safe for other children to mix with affected patients until three weeks after the rash has disappeared, and then only if all clothing has been disinfected and washed. Isolation of a patient is the only way to prevent the disease spreading.

MOLES and MOTHER'S MARKS are discolorations of the skin, often found on some part of the body at birth. The term 'mother's mark' is often applied to a *nævus*, which is a collection of small blood-vessels raised above the surface of the skin. This may be of various sizes from that of a pin's head to the circumference of a crown piece, or larger. When the child cries, the colour of these patches becomes deeper. Although not painful, they may grow to a large size, and eventually be the source of periodical bleeding. Therefore surgical advice should always be sought. Very generally a slight surgical operation is required.

MORTIFICATION or GANGRENE.—This term signifies the death of any part of the body, from disease or injury. Mortification of various parts, as the foot, for instance, may occur from old age, from debility, poverty, starvation, excessive cold, disease of the arteries of the part, or from injury to the nerves or arteries. When a part of the body mortifies it becomes black and dead, and emits an offensive odour. As a general rule surgical advice will be decidedly required. If this cannot be obtained, chloral should be given to relieve pain, and poultices made of powdered charcoal, will be the best applications.

MUMPS.—This is an infectious disorder, consisting of inflammation of a gland called the 'parotid gland,' situated behind the jaw below the ear. It generally occurs in children, but sometimes in adults. It commences with slight fever. After a few hours, or perhaps in a day or two, a swelling, often of almost stony hardness, is noticed before and under the ear, extending along the neck towards the chin. This lump is exceedingly painful, and continues swollen for four or five days, while the skin is often very red. It then gradually disappears, leaving no trace. The swelling of mumps seldom gathers. It may affect one or both sides of the face. It seldom occurs more than once in life. It is contagious, and sometimes runs through a whole family or school. Mumps is not a dangerous malady, but in severe cases swallowing is difficult from the pressure of the swelling on the throat, and but little food can be taken. Occasionally during the course of the disease, but generally at its subsidence, a similar swelling may affect the breasts or the testicles. Still more rarely the inflammation may pass from the parotid gland to the brain.

Treatment.—If mumps is very severe, causing difficulty of swallowing, or of breathing, leeches to the part may be required; but usually constant hot fomentations will be sufficient. Cold applications should not be used, as the disease is under such influence more apt to attack other parts. Flannel wrung out of hot poppy-head decoction (*vide* p. 591) is the best application. During the interval of fomentation the parts should be wrapped in flannel. The patient should be debarred for a few days from meat; and aperient medicines, as senna or castor oil, should be given. Citrate of magnesia, in doses according to age, should be used as a cooling mixture, and absolute rest and quiet should be enjoined. If the inflammation migrates to the breast, or to the testicle, or to the brain, the treatment proper for inflammation of those parts should be employed. (*Vide* pp. 76, 82, 384.)

NAILS, DISEASES OF THE.—Sores in the neighbourhood of the toe-nails are often very troublesome, especially when accompanied by what is popularly termed 'ragnail,' or 'the growth of the nail into the flesh.' It does not, however, arise from any alteration in the nail, but from the soft parts being pushed up against the edge of the nail, by tight or ill-fitting boots. If this continues, an ulcer is formed at the root of the nail, which sometimes is so painful as to prevent walking.

Treatment.—The objects are to remove the irritation caused by the nail, and to reduce the swelling. In many cases, after soaking and softening the nail in hot water, it may be filed or scraped so thin, and so much of the corner may be cut away, that the soft parts are no longer irritated. Or, by filing the nail thin in the middle, the offending edge may be caused to rise into its situation. To aid this, the soft parts should also be carefully pressed away from the sharp edge of the nail, by introducing beneath the overhanging skin a small piece of lint, and pressing it well down towards the bottom of the sore. But if the edge of the nail still presses into the parts, the corner must be cut away with a sharp pair of scissors, which is a very painful operation. Local applications should consist of fomentations and poulticing. Persons disposed to this affection should wear their shoes loose, square at the tips, and keep their nails scraped rather thin, so that they may be more flexible.

[If the nail is very tough and thick, the lint mentioned above should be at first soaked in a mixture of two drachms of *solution of potash* in one ounce of water. This will soften both the nail and the skin, which may be afterwards easily scraped, or even wiped away.]

An unhealthy ulceration, technically termed '*Onychia*,' sometimes forms about the finger-nails, particularly of unhealthy children. It commences as a deep red swelling, in which matter forms, succeeded by an ulcerated condition. Poulticing, and letting the matter out by means of a lancet, are the remedies. Laxatives and tonics will also be required.

NERVOUSNESS.—There is an irritable state of the nervous system, most common in women, but occurring in men, and characterised by causeless irritability, flushing from slight emotion, tremblings, sudden attacks of faintness, or palpitation, sleeplessness, a variable and excitable temper, fits of low spirits, a tendency to weeping. Excessive study, anxiety, or exhausting diseases, as piles or hæmorrhoids, may cause it in those previously robust. When aggravated it constitutes *hypochondriasis* (*vide* p. 259) in men, and *hysteria* (*vide* p. 261) in women. It requires attention to the general health, and tonics.

NEURALGIA.—The term is applied to nervous pain, which may occur in any part of the body, but which most generally presents somewhere in the face, when it is called *tic-douloureux.* If in the forehead on one side it is called *brow ague* (*vide* p. 246). The next more usual places are the teeth, head, and left side in women, when it is called *pleurodynia* (*vide* p. 305). *Sciatica* (*vide* p. 325) is also a form of neuralgia. The pain of neuralgia is often very severe, throbbing, lacinating, and aching, and coming on in paroxysms. If in the face it may be caused, or at least localised, by the irritation of decayed teeth, or it may result from errors in diet, and indigestion. It is also often connected with some irregularity of the 'monthly flow' in women. Lastly, neuralgia is often caused by malaria. But the great predisposition to neuralgia arises from a weakened and debilitated condition of system. The term neuralgia is derived from Greek words signifying *nerve* and *suffering*, and neuralgia has been described as 'the cry of a nerve for better blood.' The treatment of neuralgia, therefore, requires, in the first instance, inquiry into the probable cause. If carious teeth are the excitants, they should be removed, or stopped. If the pain follows indigestion, a purgative at the time, and greater care in diet, are required. If connected with the monthly flow, the case should be treated specially with reference to this cause. If malaria appears to be the excitant, which may be suspected when the malady recurs regularly and periodically, quinine should be given. In all cases of neuralgia every effort should be made to improve the general health. A nourishing and generous diet will be required, but at the same time indigestion must be guarded against. Late hours and excitement must be avoided; women should cease suckling; and a change should be taken from the plains to some *inter-tropical* hill station; or, for cases of confirmed or long-continued disease, to Europe. Inter-tropical hills are especially mentioned; as the Himalayan stations, which are outside the tropical line, afford too changeable a climate for neuralgic patients.

Pain may be relieved by hot fomentations, mustard plasters, or by the application of the various remedies for special forms of neuralgia, noted under *Brow ague*, p. 248, *Sciatica*, p. 325, *Tooth-ache*, p. 392. When the pain is long-continued and severe, chlorodyne, or chloral, may also be administered.

[In most cases, croton-chloral may be tried in five-grain doses, every four hours. For neuralgic pains, especially of the forehead, Recipes 90 and 91 should be procured and used alternately. Neuralgia is frequently temporarily, and often permanently benefited by Faradism or Voltaism, which, however, requires a battery, wire brushes, and other appliances.]

PARALYSIS or PALSY signifies loss of power of motion of a limb or of one half of the body. Sometimes sensation or the power of feeling is also lost, but this more rarely. The following are the principal varieties of paralysis.

1. *Paralysis from disease or injury of the brain.*—Paralysis of one kind or other very often follows an attack of apoplexy, and sometimes occurs from disease of the brain, without any prior apoplectic fit (*vide* p. 53). The person cannot move the affected limb, and in more serious cases the tongue and face are drawn to one side, and the tongue cannot be put out straight. Similar forms of paralysis may follow injury.

2. *Paralysis from injury of the spine.*—Another kind of palsy may be caused by injury of the lower part of the spine (*vide* p. 492), in which case motion and sometimes sensation of both legs are lost, and the fæces and urine pass involuntarily.

3. *Paralysis from disease of the spine.*—There is also another form of paralysis, called *progressive locomotor ataxy*, which depends on disease of the spinal cord. The symptoms are very gradual, commencing with feelings of fatigue in the legs, with pains of a boring paroxysmal character, often supposed to be rheumatic. In some cases there is also disordered vision, inability to retain urine at night, and perhaps discharges from the privates. As the disease progresses the pains increase, the patient finds he is losing control over his legs, that he staggers, particularly when commencing to walk, and that he cannot walk firmly without support. He lifts his feet unnecessarily high, throws them forwards and outwards, and brings the heels down with a stamp. He walks best when looking at his feet, and if he shuts his eyes, he probably falls. Sensation also becomes impaired, and the patient feels as if he were standing on wool or sand. At length, walking becomes altogether impossible. Patients thus affected usually die from some supervening affection of the chest. The duration of the disease may be some years. Treatment consists in nutritious diet and tonic medicines.

Paralysis of any of the above kinds is rarely cured, the most that can be done being attention to the general health, and friction of the limbs, to preserve their warmth and assist the circulation.

4. *Paralysis Facial*, or paralysis of some of the muscles of the face, may also arise from cold, unconnected with serious internal disorder. A person after exposure to a draught, may not be able to move one side of the face, which appears blank and expressionless, and saliva may trickle from the mouth. It is often supposed the patient has had a

'stroke,' or that he has been affected by the moon (*vide* p. 219); but this is not the case. It is a species of rheumatism, and will gradually disappear under the influence of fomentation with hot poppy-head water (*vide* p. 591) and Recipe 51.

5. *Paralysis Infantile.*—There is also a form of paralysis which sometimes occurs to infants, when teething, especially if being brought up by hand, or if suffering from improper food, or improper feeding. The child goes to bed apparently as well as usual, but after probably a restless night, the mother is alarmed to find one arm, or perhaps one arm and both legs, helpless. It is most usually met with when the double teeth are coming through. Generally the affection is temporary, lasting only a few days or weeks, and passing away as the child's feeding and nutrition improves.

6. *Paralysis Hysterial,* has been referred to in the para. on *Hysteria* (*vide* p. 262). It generally assumes the form of paralysis of the legs. It is known from real paralysis by presenting in hysterical patients, generally young girls, and although often not much benefited by treatment of a medicinal nature, generally gets well spontaneously or under the influence of hygienic measures.

PALSY, SCRIVENER'S, or WRITER'S CRAMP and TELEGRAPHIST'S CRAMP, is a peculiar kind of local spasm, or, in bad cases, of local palsy. In the spasmodic variety, every attempt to write calls forth uncontrollable movements of the fingers or wrist, so that the pen starts up and down, and a mere scrawl results. In other instances the pen cannot be held, and the wrist is almost powerless. There is generally a tired feeling in the latter part, and particularly in the ball of the thumb and in the little finger. Occasionally the arm is painful to the elbow. The causes are too much writing, aided often by an irritable constitution. The only means of relief is perfect rest to the part, and strengthening the system by tonics, fresh air, and exercise. As prevention is better than cure, the first warnings of this malady, viz. a tired feeling in the thumb or little finger after writing, should be accepted as a hint that the occupation is injurious, and that the parts are being used too much. When fully developed, writer's palsy is often very intractable and liable to return.

Among telegraph clerks the same kind of cramp occurs as in writers and others who have to execute the same motion with the fingers uninterruptedly for a long time. In Morse's system the letters are represented by dots and lines, and the disease first shows itself by a difficulty in forming the letter *s*, which consists of three dots; *i*, which consists of two dots; and *v*, which is made up of two dots and a line. By degrees every combination of dots and lines becomes difficult in the ordinary position of the hand, and the patient generally attempts to work with his thumb only, next with the forefinger and the middle finger together, and lastly with the whole hand, until he is obliged to desist altogether, owing to attacks of cramp in the whole forearm. He may also suffer from giddiness and sleeplessness. The best means of avoiding it is to use the different fingers alternately from time to time, and as soon as the least sign of cramp is noticed to use some other kind of instrument, or to give up work for a time.

Pianists, bricklayers, and nailmakers suffer from a very similar affection of the wrists, caused by continual action of, and strain on the wrists, involved by their employments.

PARAPHYMOSIS.—This term is applied to a condition of the private parts often occurring in male children. It consists in the foreskin being drawn back from the end of the penis, where it remains and cannot be returned. The result is swelling and redness of the parts, attended with considerable pain and sometimes by difficulty in making water; or, even complete inability to do so. The parts should be returned to their natural positions as soon as possible. The 'glans' or head of the penis should be compressed with the fingers and thumb of one hand, so as to squeeze the blood out of it; at the same time it should be pressed backwards while the foreskin is drawn forwards. If this does not succeed after several trials, a slight cut with a knife will probably be necessary, for which the child should be taken to a surgeon.

PHYMOSIS signifies the opposite condition to the above, and consists in an unnatural *constriction* of the orifice of the foreskin, attended with much swelling. This may be the result of sores or ulcers, or it may be congenital. The case generally requires surgical interference.

PRIVATE PARTS, FEMALE, OCCLUSION OF THE.—A peculiar affection of the private parts sometimes occurring to female children, may give rise to much uneasiness. This consists in the apparent formation of a skin at the orifice, uniting the two sides, which seem thus grown together. It depends on the collection of the natural discharge near the orifice, and although of some strength and thickness, it is not a new growth. The urine of children thus affected often squirts in a backward or forward direction, which may first attract attention to the malady. It chiefly occurs to children who are not kept properly clean. The remedy consists in breaking the obstruction down with a probe, in applying a little salad oil to the parts if they appear red and sore, and in perfect cleanliness.

PRIVATE PARTS, FEMALE, DISCHARGE FROM THE.—This may arise from *gonorrhœa* (*vide* p. 232) or from *whites* (*vide* p. 406). Discharge from the genitals may also occur in children, as a result of the irritation caused by *worms*, especially by *thread worms* (*vide* p. 425) or from *constipation* (*vide* p. 116); particularly when little balls of hard fæcal matter are allowed to collect in the lower gut. Discharges of the kind occurring to female children may become a source of suspicion of unfair usage; but they are commonly due to the causes indicated. The treatment consists in finding out, and in removing such causes; in cleanliness; and as the malady mostly occurs to weakly children, in giving good nourishing diet, and, after removal of the causes, tonic medicine. (Recipe 21.)

PRIVATE PARTS, MALE, DISCHARGE FROM THE.—This malady is known technically as *spermatorrhœa*, and consists of nocturnal discharges. In severe cases, similar discharges may occur during the day. There is frequently a glairy-looking discharge from the private part, when the bowels are opened. As a general rule, this affection either depends on bad habits, or it arises from some irritation of the parts, consequent on *Piles* (*vide* p. 300), or on *Worms* (*vide* p. 425), or on *Varicocele* (*vide* p. 399), or on *Constipation* (*vide* p. 115). It is commonly associated with some dyspeptic symptoms, and the patient is very often out of health, his system below par, and influenced by some disappointment or mental anxiety. The recurrence of the symptoms tends to exaggerate the depressed condition, the mind of the patient dwells needlessly upon it, and he erroneously supposes the malady to be of great importance. This, however, is not the fact. If it depends on bad habits, the result will cease when the practices are discontinued. If there are piles, or varicocele, or constipation, these maladies must be treated, and not the effect they cause. If there are dyspeptic symptoms, treatment must be directed towards them (*vide* p. 163). If the spirits are depressed, change of employment, or relief from mental occupation, and change of locality are indicated. In the meantime, the bowels should be kept open, and the closet should be visited in the evening, so that the lower bowel or *rectum* may be emptied, before the person retires to rest. Late suppers should be avoided, and no spirits should be taken. The patient should sleep on a hard bed, and be lightly covered, and he should not lie on his back. To prevent this, some solid substance fastened with a handkerchief on the back, a little below the loins, is a good contrivance. As medicine, if there are no prominent dyspeptic symptoms requiring treatment, and if the bowels are sufficiently open, quinine and iron (Recipe 21).

PILES.—Piles, or *hæmorrhoids*, consist partly of enlarged blood-vessels (*vide Varicose Veins*, p. 399), partly of thickened mucous membrane, partly of skin, and appear close to the end of the lower bowel or *rectum*, either inside or outside the orifice. Hence they are spoken of as *external* or *internal* piles; and it is the latter from which the bleeding afterwards mentioned most frequently arises. Internal piles are very insidious in their growth, and sometimes it is the bleeding which first attracts notice. Whether the piles are internal or external there may be one, or there may be several clusters of such formations in the shape of small tumours. At first they appear for a time, and then, becoming smaller, cease to give trouble probably for many months. Then reappearing they cause much heat and pain about the fundament, bleeding perhaps occasionally, or in some cases daily. When a person is subject to piles the malady at length becomes permanent, and the piles, if not always bleeding or inflamed, or even if internal, when not appearing outside, cause a continued sensation of weight and discomfort behind, and pain in the loins, which constantly annoys the patient. They also become periodically inflamed, causing pain and straining at stool, often with irritation of the bladder or symptoms of dysentery. They are also often associated with, or indeed cause, *fissure* or *ulcer of the anus* (*vide* p. 226). In women especially, piles cause aching of the back, with mucous discharges, and many other anomalous symptoms, which will be treated in vain until the real cause is understood. Such anomalous symptoms are debility, palpitation, the conditions mentioned under *Nervousness* (*vide* p. 292), and dysenteric stools. All these symptoms may occur, from a very small, or perhaps unsuspected internal pile. Piles are very common in India, as a consequence of the heat of the climate, and the tendency to liver disease; and the periodical loss of blood caused by piles, and the consequent weakness thus induced, are frequently the indirect source of other ailments. Thus a person so affected, will be the more liable from his debilitated condition, to attacks of malarious diseases. On the other hand the loss of blood caused by piles, if not excessive, appears to have, to some degree, in stout and robust persons a salutary effect, by relieving the liver of threatened congestion, the result of plethora, or fulness of the system. In time, however, the loss of blood being continually repeated, perhaps even daily, the debilitating effect far counterbalances any healthy tendency, so that piles should never be neglected, under the idea popularly held, that by the discharge of blood, some deleterious matter is expelled from the system. The bleeding from piles takes place as a rule after the action of the bowels, and covers the motions; more rarely it precedes the stool; in exceptionally severe cases it occurs independently of the action of the bowels, on the patient suddenly assuming the erect posture, or without any assignable reason.

The causes of piles are numerous. Constipation and the consequent straining at stool tends to produce them. Sedentary pursuits, and too long sitting on soft seats have a tendency to excite them. Too much horse exercise or camel riding, riding in a jolting vehicle, the immoderate use of strong purgatives, especially aloes, are all exciting causes. Warm, moist, and miasmatous climates, by inducing relaxation generally, and of the veins in particular, are also causes. Congestion of the liver is a fertile source of piles; also the frequent occurrence of diarrhœa or dysentery.

Treatment.—The treatment of piles must be divided into that proper during the painful or inflammatory stage, and that necessary when the parts are quiescent. When *external* piles are inflamed, fomentations or poultices should be applied, and the bowels should be well opened by castor oil or by sulphate of soda (Recipe 2), which produces watery stools. But after the bowels have once been well cleared, purgatives should not be given. The patient should be kept at rest in bed, and, if feverish, citrate of magnesia (p. 14) should be administered. After the sore or inflammatory condition has passed away, the parts should be bathed frequently with cold water, or cold alum water, while tolerably active exercise must be taken, and the bowels prevented becoming costive by laxative medicines, or perhaps by brown bread. The utmost cleanliness is necessary, as dirt may cause the piles to ulcerate or suppurate, from the irritation it excites.

In the treatment of inflamed *internal* piles, or those not protruding outside the verge, the bowels should be once thoroughly moved by castor oil, after which, as poultices or fomentations cannot be applied to the part, injections of warm water may be used. The patient should be kept quiet in bed, and, if feverish, should take citrate of magnesia draughts (*vide* p. 14). When piles are inflamed, whether internal or external, the diet should consist chiefly of broth, toast, eggs, or milk, and no stimulants should be allowed.

When internal piles protrude after the use of the close stool, they should always be sponged with cold water, or with alum water (Recipe 100), before being returned. When they do not return, or cannot be replaced, the person should lie down for a time, when perhaps the protruded substance will be drawn back by the action of the bowels. If not, they must be returned with gentle pressure, otherwise they may become constricted and inflamed by the pressure of the verge of the anus. It is a good rule for persons subject to internal piles, to acquire the habit of visiting the closet at night, instead of the morning, that the piles, if protruding, may be returned when the recumbent posture is about to be assumed, rather than previous to the active business of the day.

Black pepper, cubebs, pitch, sulphur, and a host of other medicines, have been from time to time lauded as beneficial in piles. Similarly, zinc, alum, oak bark, and lead lotions have been recommended as local applications. But the cure of any kind of piles consists more in hygienic measures, and in attention to diet, than in medicines. The patient should restrict himself to a carefully regulated and temperate diet, abstaining from highly seasoned dishes, pastry, and spirits.

Change of climate to Europe will often relieve piles when other means fail. But frequently a surgical operation is required.

[Of local applications for piles, the best is probably the compound gall ointment (Recipe 95), which should be procured by those subject to the malady. When, in conjunction with piles, there is tendency to inactive or congested liver, Friedrichshall, or Hunyadi Janos mineral waters, may be recommended.]

PLAGUE or **PESTIS.**—During recent years, plague has been confined to Egypt, Syria, and Asia Minor, but latterly it has extended in a European direction. As the disease prevails periodically on the shores of the Euphrates, and as communication with India is frequent and rapid, it is fortunate that plague has not yet been added to the list of ever-present Indian diseases; which, however, might occur at any time. In fact, an epidemic, which, if not true plague, was certainly very similar to plague, has several times prevailed in various parts of Western India.

The first symptoms are lassitude, shivering, vomiting, often of black material, and a heavy, stupid expression of countenance, with redness of the eyes. Then there is high fever, and darting pains in the groins, or armpits, where large boils, buboes, or carbuncles quickly form. There is also often an eruption of mulberry-coloured spots, or watery blisters on the body. Profuse perspirations are regarded as favourable: diarrhœa, bleeding from the nose or bowels, and delirium, are unfavourable signs. The duration of bad cases is only two or three days, but less severe cases may be protracted two or three weeks. The disease may develope itself in a few hours after exposure to contagion. It may be communicated through the medium of the atmosphere, or by clothes or other articles which have been in contact with the sick.

The conditions under which plague arises are a warm, moist, semi-tropical atmosphere; a low-lying alluvial soil, near the banks of rivers, crowded or badly ventilated dwellings; putrescent emanations from decaying animal or vegetable matters; insufficient or unwholesome food; the combination leading to physical and moral wretchedness and deterioration. When thus originating it may spread to other places, and among other populations, less influenced by the conditions named; but plague, as is the case with every other epidemic disease, will chiefly localise itself where such influences prevail.

The treatment consists in affording a pure atmosphere, in giving light, but nourishing food, with stimulants, and in treating boils, buboes, or carbuncles, in the manner indicated under such headings.

PLEURISY.—Pleurisy is inflammation of the serous membrane covering the *outside* of the lungs, and the *inside* of the chest, and separating one from the other. At the commencement of acute pleurisy there is generally shivering followed by fever, and by sense of weight, or 'stitches' in the chest. This in a few hours becomes acute *stabbing* pain, and is most felt in the side about the level of the nipple, shooting to the front of the chest, to the collar bone, or to the armpit. There is short dry cough, the breathing is short and 'catching,' and the pain is increased by coughing, by taking a long breath, or by lying on the affected side. The pulse is frequent and hard, feeling under the finger like a tense vibrating string. The tongue is furred white, the urine scanty and high-coloured, and the skin hot.

Pleurisy may be caused by cold, or by external injuries, as fracture of the ribs, and often arises during the progress of intermittent or remittent fevers. If not checked, the result is the effusion of a watery fluid in the membrane, placed between the lungs and the inside of the chest, forming one variety of dropsy of the chest. In favourable cases the acute pain and fever subside about the fourth or fifth day; but if there be any fluid effused, the cough and difficulty of breathing may persist for an indefinite period.

Pleurisy may be distinguished from *inflammation of the substance of the lungs*, by *first*, the character of the pain, which is *stabbing* or *lancinating* in pleurisy, but dull and aching in inflammation; *secondly*, by the cough, which is hard, dry, and short in pleurisy, and unattended with expectoration. In inflammation of the lungs the cough is more prolonged, and the expectoration is frothy and 'rusty,' or brown-coloured from admixture with blood. Mild cases of pleurisy may also be mistaken for the neuralgic affection, or pain in the side, known as *pleurodynia* (*vide Neuralgia*, p. 293), and *vice versâ*. *Pleurodynia* is distinguished by its generally affecting the left side, and by there being no attendant fever, as may be discovered by taking the temperature with the thermometer (*vide* p. 34).

Treatment.—The patient should be kept in bed, warm and free from draughts. He should move and talk as little as possible, as motion accelerates the breathing and increases the pain. The diet should be light and nourishing, as eggs, beef-tea, broth, jelly, and fish. If the pain is *very severe*, and the patient a *strong*, *robust* person, bleeding from the arm may be required, after which the pain is much relieved, and a long breath may be taken with more ease. If pleurisy occurs in a weaker person leeches may be applied over the painful part, one for each year of the patient's age, up to thirty in number. As medicines, Dover's powder and ipecacuanha (Recipe 39) may be given every four hours. Restlessness at night is very common, and this may be relieved by chloral. During convalescence care against cold and chill is urgently necessary, and if there is any remaining cough, an expectorant mixture, as Recipe 31, should be used.

[In bad cases of pleurisy occurring in young robust persons, it will be generally advisable to give calomel and opium (Recipe 43) as soon as possible, and the medicine should be continued until there is a metallic taste in the mouth or slight soreness of the gums. Also, if there is much feverishness, tartar emetic mixture (Recipe 33). The tartar emetic, by its effect on the circulation, maintains the influence of the bleeding or leeches, and the calomel, affecting the system, puts a stop to the inflammatory tendency. When pain is relieved or ceases, this medicine must be discontinued. If the mixture produces sickness, the quantity given as a dose should be lessened.]

PLEURISY, CHRONIC.—Chronic pleurisy is generally a consequence of the acute form, but occasionally it commences as a sub-acute disease. In either case *hectic fever*, or feverishness at night, a permanently quickened pulse, emaciation, difficulty of breathing increased on exertion, and inability to lie on the healthy side are the principal symptoms. These symptoms may be more or less severe according as the pleurisy is of greater or smaller extent. And such a condition is apt to alternate with symptoms of the more acute form, such as more severe pain, and increase of fever with quickness of the pulse.

Treatment.—The treatment of the chronic form of this disease consists in supporting the patient's strength and in promoting the absorption of any effused fluid. The *first* indication should be fulfilled by liberal diet and by tonics as Recipe 17; the second by the frequent application of some counter-irritant, which, in the absence of the remedy mentioned in the small type below, may be mustard poultices, to the painful part.

Chronic pleurisy may exist for months or years, the person so affected sometimes feeling little of the ailment, at others suffering from repeated sub-acute attacks. But in such patients the breathing is generally difficult, particularly after exertion, and there is tendency to night fever and night sweats. One of the chief means by which increase of the disease may be guarded against is care to avoid catching cold, for any slight cold in such persons is very liable to attack the chest as the weakest part, and to result in an accession of the more acute form of the malady. Paroxysms of intermittent fever or ague must also be guarded against by the use of quinine, for when such fever occurs it is very liable to induce an increase of the pleuritic affection.

[The best local application for chronic pleurisy is iodine paint, which should be applied to the side by means of a feather or brush every day, or less frequently after the first two or three days, so as to maintain an irritation of, but not to blister, the skin. Iodide of potassium (Recipe 45) should also be administered internally. These measures, particularly the iodine paint, should be had recourse to immediately on every fresh attack.]

The ultimate results of either acute or chronic pleurisy may be accumulation of *water* in the cavity of the *pleura* or membrane between the lungs and walls of the chest, which condition is called *Hydrothorax*, or accumulation of pus in the same position, called *Empyema*. These conditions may be suspected when, after pleurisy, night fever and pain remain, when the person grows emaciated, and when one side of the chest appears bulging and more prominent than the other. Such conditions require careful diagnosis and treatment by an experienced surgeon, and are often fatal.

PREGNANCY, DISEASES OF.—The most usual complaints during this period are—1. *Peculiar indigestion.* 2. *Fainting feelings and palpitation.* 3. *Morning sickness.* 4. *Toothache and salivation.* 5. *Swelling and cramps of the legs.* 6. *Varicose veins.* 7. *Irritation of the breasts.* 8. *Piles.* 9. *Irritation of the bladder and private parts.* 10. *Miscarriage.*

1. INDIGESTION DURING PREGNANCY is generally marked by constipation, by heartburn, and by flatulence. The urine is also altered in various ways, often forming a filmy deposit on

the surface when allowed to stand. The countenance occasionally becomes sallow, and there are sometimes eruptions on the face. The treatment consists in maintaining the bowels moderately loose by castor oil, by senna, or by Recipes 1 and 2; in the use of remedies mentioned under the head *Flatulence* (*vide* p. 228), and in care and attention to diet, which should be nourishing but easily digestible.

2. FAINTING FEELINGS AND PALPITATION.—These feelings are more common about the period of 'quickening,' or between the end of the twelfth and the sixteenth week of pregnancy. Fainting feelings, or palpitations, often accompany the first movements of the child, and will be the more persistent and severe, if indigestion, as described above, prevails, or if the person exposes herself to the ordinary causes of fainting, as hot rooms, fatigue, or excitement. Often the least thing affects the patient, and there is frequently a great dread felt of something unpleasant happening. A stimulant, as sal volatile or wine, and the recumbent posture is the immediate treatment required. All tight articles of dress should be discarded. But unless care is taken to avoid excitement, this nervous condition is liable to terminate in abortion, or premature labour.

3, MORNING SICKNESS.—This generally sets in about the sixth week, ceasing after the third month. But it may commence much earlier, and it may continue to the termination of the pregnancy. Most women suffer more or less from nausea, and vomiting, especially on rising in the morning, but with some women it continues more or less during the entire day, and may be extraordinarily violent. A minor degree of nausea during child-bearing is popularly supposed to be a good sign rather than otherwise, and if only present to a slight degree in the morning, no particular treatment will be required. In other cases great attention must be paid to diet, one article after another being abstained from, in order to discover any offending material. For it sometimes happens that substances taken by women with perfect impunity at other times, cannot be eaten during the time of pregnancy. Rich, indigestible food, as pastry, made dishes, and salt meat, should be avoided. The bowels also must be kept open by castor oil, so as to avoid constipation. A little tea and toast should be taken in the morning, before the erect posture is assumed. If acidity of the stomach is present, the medicines mentioned under such head should be employed. Effervescing draughts of citrate of magnesia (*vide* p. 14) with two or three drops of chloroform, or sal volatile in a little water, may also be employed. Quinine, with an aperient, if the bowels are confined, as Recipe 17, with the addition of six drachms of sulphate of soda, may be tried. Champagne and soda water sometimes afford relief. The inhalation of the steam from hot water in which a little laudanum has been mixed in the proportion of one ounce of the latter to two quarts of the former may be advisable. Some women find it a good plan to drink a glass of warm water, and so encourage the sickness for a few minutes, which then passes off, leaving them free for the day. Ipecacuanha wine, given in one-drop doses, in a teaspoonful of water, every hour, has sometimes a very good effect. When vomiting or nausea are very distressing, continuing all day, nourishment in the shape of good soup and brandy should be administered, at intervals of half an hour, but not more than two or three spoonfuls at once. Sucking ice is also often useful, and a mustard poultice to the pit of the stomach should not be neglected. The wet compress may also be tried. This is made by placing several folds of wet linen over the stomach, covering with oiled silk and then applying a bandage from eight to ten inches wide. This should be drawn moderately tight, and the compress worn for two or three hours every morning.

[Other remedies are magnesia in peppermint water, as Recipe 35; also

Recipes 41, 42, 47, 55, and 56, any of which sometimes suit one person but not another, nor even the same person at different times.]

4. TOOTHACHE AND SALIVATION.—Toothache is a very frequent attendant of the pregnant state. The pain is sometimes confined to a decayed tooth; occasionally it attacks a sound one. The first, if far gone, may be extracted, although this is not always advisable, as the shock has been in nervous women followed by miscarriage; but a sound tooth should never be taken out. The ordinary local applications may be used, as mentioned under *Toothache*, p. 393. But perhaps more benefit will be derived from attention to the general health as regards the state of the bowels, of the digestion, and of manner of life in matters of regimen and early hours. Washing the mouth out with a tea-spoonful of salt in a tumbler of water is often beneficial.

Salivation, or the profuse secretion of saliva, is less common than toothache, but sometimes occurs either in connection with the latter ailment, or alone. Astringent gargles may be used (Recipe 100), or a piece of alum may be sucked occasionally. Attention must also be paid to the general health, and constipation of the bowels must be avoided.

5. SWELLING AND CRAMPS OF THE LEGS.—Swelling of the legs occurs during the latter months of pregnancy. This condition, and *varicose* or enlarged veins, with which it is often associated, are due to the pressure exercised by the distended womb on the blood-vessels passing from the body to the lower extremities. When the legs are swelled, they 'pit,' or show an indentation when pressed with the fingers, and are larger in circumference than natural. The swelling is much less in the mornings, sometimes totally disappearing after lying down, but soon returning on the erect posture being reassumed. For swelling of the legs occurring during pregnancy no kind of medicine is of much avail; as, until the pressure is removed by the birth of the child, the results must continue. But the condition may be very much lessened

by frequently lying down, by keeping the legs up on a stool when sitting, and by applying bandages, or wearing an elastic stocking made for the purpose. For *cramps* and pains in the legs often attending the swelling, *gentle* rubbing with brandy and salad oil mixed in equal proportions, or with soap and opium liniment, if available, is an appropriate remedy (*vide Spasm*, p. 356). A bandage or garter tied tightly round the leg above the seat of pain will often relieve cramp, but the bandage should not be permitted to remain on for longer than four or five minutes. As a rule, the usual garter should be disused, and the stockings may be suspended by a tape buttoning to the corset.

Note.—If swelling of the face, or of other parts of the body, takes place during pregnancy, medical advice should be obtained as soon as possible, as it may be the commencement of some serious disease. In the absence of medical assistance the person should be treated as recommended for dropsy from exposure (*vide* p. 154).

6. VARICOSE VEINS.—(*Vide* p. 399.)

7. IRRITATION OF THE BREASTS.—About two months after conception the attention of the woman is probably attracted to the state of the breasts. There is an uneasy sensation of fulness, with throbbing and tingling pain; or perhaps pain below the breast on the left side. The breasts increase in size, feel knotted, and there is a dark circle round the nipple. There is also sometimes a milky or watery secretion from the nipple. When these symptoms are prominent they cause considerable annoyance, but they may generally be relieved by keeping the bowels open, and by bathing the breasts with warm water. During the latter month of pregnancy, and especially before the first confinement, the nipples should be bathed twice daily, with equal parts of brandy and water, or with alum water, or with infusion of green tea, or infusion of pomegranate bark, and they should be pulled out and elongated with the fingers. Any flannel covering

worn over the nipples should also be laid aside. These measures prevent 'cracking' during suckling, and render the nipple longer, and therefore more easily accessible to the child's mouth. The pain below the breast, mentioned above, often depends on constipation, and may be relieved by aperients. When the breasts are tender, heavy, and enlarged, and often in any case, much benefit is experienced by supporting them by a pad of wadding attached to the stays, or by a handkerchief, passing under the breast and tied over the opposite shoulder.

8. Piles.—Piles, both internal and external, are very common during pregnancy; they are caused by the pressure of the distended womb, and therefore no medicines will be found of much benefit. After confinement they generally disappear. Avoiding standing about, and lying down frequently, washing the parts with cold water and applying gall ointment (Recipe 95) is the proper treatment.

9. Irritation of the Bladder and Private Parts.—These conditions also depend on the pressure exerted by the distended womb. *Irritation of the bladder* manifests itself by 'scalding,' by frequent desire to make water, or by inability to retain the water, which frequently passes even against the will of the patient. Some relief may be obtained by drinking freely of barley water, linseed tea, or lime-water and milk, by relieving constipated bowels by aperients, and by maintaining the recumbent posture for several hours during the day, lying on either side instead of the back. But in many instances nothing will relieve this condition, which persists until the womb rises sufficiently high, so that the pressure from its bulk on the bladder is removed.

Occasionally not only irritation of the bladder, but even retention of urine, or inability to make water, is caused by women in the early months of pregnancy neglecting to pass water until the bladder becomes too much distended, so that its muscle loses the power of contracting to expel the contents: a complication producing much suffering. Females travelling by rail, or in other positions where they are unable to obey the calls of nature, are often exposed to this accident. When retention of urine thus occurs, the person should as soon as possible take a warm bath. If this does not produce the desired effect, she should go to bed, take ten grains of Dover's powder, and be covered with blankets to produce perspiration, and so relieve the bladder until either urine passes naturally or a doctor can give relief by passing a catheter. Drinking, meanwhile, should be abstained from, and no medicines, as spirits of nitre or gin, calculated to increase the secretion of urine, should be taken, for by such means the distension of the bladder would be increased, while its power of expulsion would not be renewed. The bladder, when once paralysed in this way, does not recover its tone immediately, and therefore may require to be again relieved by the warm bath or the instrument. When cases of the kind are neglected, and the bladder is distended to its greatest limit, the water may begin to flow off by drops *without the will or even knowledge of the patient.* Nurses and attendants are often deceived by this appearance, and fancy that the water having commenced to come will soon flow naturally. But the reverse is the fact, and when this occurs the case demands constant surgical aid.

Displacement of the womb is a frequent consequence of the foregoing malady. If pain continues after the bladder has been emptied, displacement of the womb may be suspected; and this accident will frequently require the aid of a skilful surgeon.

Irritation of the private parts may result in the discharge termed *leucorrhœa* or 'whites,' or the irritation may take the form of intense itching, with or without an eruption of minute watery vesicles. (For *Whites*, *vide* p. 406.) For intense itching, bathing with cold or iced water is the best remedy. If the itching is accompanied by the eruption of vesicles mentioned above, alum water should be used. Sometimes much relief may be obtained by bathing with cold poppy water (*vide* p. 591).

10. MISCARRIAGE.—Miscarriage occurs some time before the sixth month of pregnancy. If the child is born after that time it is called *premature delivery*. But the most usual period of miscarriage is about the third month, and it is more likely to happen about the time corresponding with what would have been the natural monthly period had not pregnancy occurred. It is always an untoward event, and often exerts an unfavourable influence on the health of the female. When it has once occurred it is very likely to happen again on future pregnancy. It is common enough with Native women, but much more so with European females in the tropics. The causes are various; often depending on debility, and often brought on by imprudence in horse exercise, dancing, or from excitement, from passion or fright. It also frequently results from blows, falls, or concussions, such as missing a step coming downstairs, bumps in a carriage, jolting in a palankeen, &c. In other instances it is due to local weakness or disease of the womb. There is in some women an inherent weakness of constitution, which prevents pregnancy passing on to the full time. Attacks of malarious fever, so common in India, add to this weakness, rendering miscarriage in such persons an ordinary sequence of conception.

Symptoms.—When threatened with a miscarriage the patient experiences a sense of uneasiness, languor, and weariness, with aching pain in the back, loins, and hips, and there is often a slightly bloody discharge. After these symptoms have lasted a variable time, there are pains very like those of labour, often vomiting, and sometimes profuse bleeding, the blood passed being of a vivid red colour. This may continue for several days, the pain and bleeding recurring at intervals; or the miscarriage may commence suddenly, and the whole be over in a few hours. The *ovum* or *fœtus* is expelled in the shape of a reddish-white ball, the size of a pigeon's egg, at three months, and larger in proportion afterwards. After the *ovum* or *fœtus* has passed away, the pain and bleeding cease. In a case of miscarriage the danger and after injury are in proportion to the amount of pain and of attending *hæmorrhage* or bleeding.

Treatment.—In a case of miscarriage the first question is, Can the abortion be prevented? If the bleeding is slight and the pain trifling, this may sometimes be accomplished by *perfect* quiet and rest on a hard bed in a cool room, aided by a dose of thirty drops of chlorodyne in one ounce of water, followed by alum mixture (Recipe 58). But if increased pain and bleeding occur, the miscarriage will certainly take place, when the danger to be guarded against is profuse loss of blood. The alum mixture should be continued, the patient should not be allowed to move from the bed, and cloths saturated with cold water should be applied to the external outlet. As before mentioned, the bleeding ceases directly the abortion passes, but it is sometimes necessary to remove the mass with the fingers.

The after treatment of patients who have miscarried requires as much care as after a confinement. The patient should rest in bed seven or eight days, and then return gradually to her employments, while the diet should be simple, and the bowels be maintained moderately open. Getting about too soon after a miscarriage is not unfrequently the origin of some malady of the womb, especially of displacement or falling of that organ, from which the woman may long suffer.

[A better medicine than the alum mixture mentioned above is Recipe 59, which, if possible, should be procured and used.]

PROSTATE GLAND, ENLARGEMENT OF THE.—The prostate gland surrounds the urethra at the neck of the bladder, and is liable to several diseases, the principal of which is slow enlargement. This affection is more common after middle age than before, and is characterised by increasing slowness and difficulty in making water, a sense of weight in the fork, and straining, so that the patient often imagines he has piles. Next the bladder becomes irritable, and there are frequent calls to make water. But the enlarged gland prevents the bladder being perfectly emptied, and the urine remaining decomposes and becomes ammoniacal, setting up chronic inflammation of the bladder (*vide* p. 65). Then the urine is loaded with sticky tenacious mucus, or purulent matter, which adheres to the bottom of the utensil, and is frequently tinged with blood. There may also be fits of complete retention of urine (*vide* p. 537). Finally the kidneys become affected, and the patient's strength is exhausted.

The early symptoms of enlargement of the prostate are sometimes very like those arising from other causes, as *stone in the bladder* (p. 66) and *stricture* (p. 365), so that physical examination is sometimes necessary to decide the point.

Treatment.—This disease is seldom, if ever, cured, although much may be done to retard the progress of the malady. The patient must avoid irregular diet, fatigue, and exposure to cold, The bowels should be kept open, so that there may be no straining at stool, and the medicines mentioned for chronic cystitis (Recipes 48, 49, 69) should be obtained and tried in succession, one or more of which will probably prove very serviceable. Enemas of warm water will also prove beneficial for the relief of occasional fits of spasmodic pain. The passage of a peculiarly shaped catheter will be also necessary, so that the malady is one requiring the daily attention of a surgeon.

RHEUMATISM, ACUTE.—In no disease is the distinction implied in the terms *acute* and *chronic* more manifest than in rheumatism; for although the disease occurs with every degree of severity and of every shade of character between the two extremes, yet in most cases the character is very clearly marked. *Acute* rheumatism implies the presence of fever; *chronic* rheumatism its absence. The latter is a frequent sequel of the former; it will now be understood why *acute* rheumatism is often called *rheumatic fever.*

Acute rheumatism is more common in young than in old persons; it commences usually after exposure to damp cold, with fever, a full quick pulse, hot skin, coated tongue, and scanty urine, which deposits a dusky reddish sediment. The pain generally comes on in one of the larger joints, which is highly inflamed, red, and swollen, so that it cannot be moved, and the slightest touch is shrunk from. The inflammation may attack several, or perhaps all the joints, but more commonly two or three are affected one day, and then others are suddenly attacked, the first joint implicated growing almost as suddenly comparatively well. There are also frequent sour perspirations, which do not afford relief. The duration of the disease may be a fortnight to three weeks, when complete recovery may occur, or stiffness and pain in the joints may remain long after the acute symptoms have subsided. If the temperature of the body rises to 104° Fahr., it must be considered an alarming symptom, indicating heart affection, as described below.

A very frequent accompaniment of acute rheumatism is a peculiar affection of the heart, the disease extending inwards and attacking that organ. This is recognised by pain in the left side, by a feeling of distress and tightness in the chest, by the presence of difficulty of breathing, and by a long breath causing increase of pain. There may also be occasional palpitations and irregularity of the heart's action, manifested by the pulse being intermittent and affording a peculiar jar or thrill to the fingers. During an attack of rheumatic fever such symptoms should be daily watched for, as they denote a serious aggravation of the illness, from inflammation of the membranes covering or lining the heart.

Of the latter membrane are formed the delicate valves guarding the portals of the four chambers of the heart. When these valves become inflamed there is tendency to deposit of material from the blood upon them, or they may be contracted, or their action otherwise interfered with. Then there is an impediment to the easy passage of the blood, which even years afterwards may evidence itself by alteration in the sounds of the heart, and by the too certain result—*dropsy*—from which death sooner or later occurs. Acute rheumatism, therefore, from its tendency to affect the heart, must always be regarded as serious, and must be watched with care.

Treatment.—In ordinary cases keep the patient at rest during the whole period of the disease, and apply a hot alkaline lotion to the affected joints. The lotion should be composed of half a pound of common carbonate of soda dissolved in one quart of hot water, with which cloths should be well saturated, wrapped round the parts, and the whole covered with oiled silk. If the pain from movement is not too great, a hot bath at 98° Fahr. should be given daily, a couple of pounds of common carbonate of soda having been previously dissolved in the water. If the bowels are not moved naturally, they should be acted upon occasionally by medicines, as Recipes 1 and 2, and citrate of magnesia draughts should be taken two or three times daily. Dover's powder in ten- or fifteen-grain doses may also be given at night, when sleeplessness from pain is complained of. Throughout the whole of an attack of acute rheumatism, low diet and abstinence from stimulating liquors are necessary.

[If procurable, the colchicum and alkaline mixture (Recipe 72) should be used. When the symptoms indicate extension to the heart, a blister should be applied over the seat of pain, the patient should be forbidden to talk much, the Dover's powder should be continued at night, and Recipe 72 should be given more frequently, or every three hours.]

RHEUMATISM, CHRONIC.—This form of rheumatism is more frequent in elderly persons, especially of the poorer classes. Chronic rheumatism may attack either the joints or the muscles, and in the latter case is sometimes called *Muscular Rheumatism.* There is pain in the larger joints, accompanied sometimes with swelling, but the smaller joints, as the knuckles of the fingers, do not always escape. It is to this form of the malady that the term *Rheumatic Gout* is often applied. Frequently there is also pain in the muscles of the limbs, sometimes wandering from one part of the body to another. Lumbago, as already described, is a form of muscular rheumatism, and so is frequently the affection called *sciatica,* presently noticed. (*Vide* p. 325.) In chronic rheumatism there is generally neither fever nor perspiration, and often no obvious inflammation or enlargement of the painful parts. Sometimes the pain of chronic rheumatism is relieved by warmth, in other cases warmth increases it.

Treatment.—The first thing to attend to is the removal of the causes by which the malady is kept up. Rooms with damp floors and walls, insufficient clothing, especially want of flannel, and absence of nourishing diet, are among the most prominent. As medical treatment, warm clothing, generous living, Dover's powder occasionally at night, and rubbing the parts with grass oil may be recommended.

Stiff neck, which is a form of muscular rheumatism, may often be much relieved by spreading a layer of cotton wool over the part, and then ironing it with a hot flat iron.

[As internal remedies Recipes 51 and 72 may be procured and tried in succession. As external application, Recipe 89.]

RICKETS.—This disease is a softening and yielding of the bones, which are deficient in earthy salts. It usually occurs to scrofulous or to delicate children, particularly if they have suffered much from the bad nutrition consequent on repeated or long-continued *disorder of the stomach* (*vide* p. 362); or, if they have been fed too exclusively on farinaceous foods. Unhygienic conditions, as damp residences, want of ventilation, and unsuitable clothing, add much to the liability to the disease. Rickets is most likely to occur from six months old till all the teeth (which are always backward) have appeared, but it may present up to seven years old. The first symptoms are common to several diseases of children, viz. fretfulness, irritability, capricious appetite, disordered bowels, with lead-coloured stools, emaciation. There is also slight fever, followed by swelling of the bowels, which often feel knotted; the condition in fact described as *atrophy* (*vide* p. 61) being established. Then there is profuse perspiration at night, especially about the head, with a tendency to kick all the clothing off. The joints, especially the knees, ankles, and wrists, now grow tender, and become swollen, thickened, and knotted in appearance, and the legs also may bend outwards, with the result, perhaps, of permanent 'bow leg.' The child cannot stand, is unable to turn itself in bed, and dreads to be touched. There may also be a thinning of the bones of the head, especially at the back; and the *fontanelles*, or spaces between the bones at the top, do not close, giving the head a large appearance, and sometimes resulting in *water on the brain* (*vide* p. 77). Sometimes the spine or bones of the chest become affected, and there may be permanent deformity of the spine, or the condition known as 'chicken breast.' A child with rickets always looks prematurely old and careworn, and there is an unnatural brilliancy of the eyes. The disease may last some months, and may terminate from exhaustion, or from continued diarrhœa, or from some affection of the chest supervening, or less frequently from convulsions. The first signs of recovery are the child being able to move better, decrease of emaciation, and natural stools.

Treatment.—Careful nursing and dieting are of equal importance as medicine. Cod-liver oil, and citrate of iron and quinine (Recipe 21) are always required. Also lime-water and milk in equal parts. Animal broths should also be given freely, but vegetable food more sparingly. A little port wine may also be usually taken with advantage. Good hygienic conditions, such as plenty of fresh air, ventilation of sleeping rooms, freedom from damp, and warm clothing are imperative. Sea or salt water baths, or, if movement is too painful, salt water sponging, are always beneficial. The child should sleep on a good even mattress, and should sit up as little as possible. He should also be kept from walking till the bones are able to bear the weight. If the spine is affected, he should lie mostly on the back. It is by attention to these matters that, if recovery occurs, the child will escape presenting the characteristics of rickety people who were neglected during the progress of the disease, viz. a large head, and small face, quite out of proportion to a misshapen body and bowed limbs.

SALIVATION.—This term signifies an increased and unnatural flow of saliva. The salivation sometimes occurring to pregnant women has already been referred to under the *Diseases of Pregnancy* (*vide* p. 310). But salivation may occur from inflammation of the gums and mouth, as the result of cold, of debility, of indigestion, of teething, and of taking mercury and some other substances.

In such cases there is swelling of the ckeeks, tongue, and gums, enlargement of the glands under the jaw, stiffness of the latter, shooting pains in the face, fœtor of the breath, and a profuse discharge of saliva. When salivation has been caused by mercury, the fœtor is more marked and peculiar, and there is a more or less distinct red line on the gums near the teeth. As the swelling becomes greater, the tongue and cheeks are indented by the teeth, and ulcers form. The usual duration of mercurial salivation is from ten days to a fortnight; in some cases the inflammation may be more prolonged, and the resulting ulcers slower in healing. The treatment should consist in the use of astringent gargles, of which alum is one of the best (Recipe 100), or port wine and water in equal parts may be used; sometimes one, sometimes the other appearing to suit best. The patient's strength must also be supported by fluid, but nourishing and easily digestible diet. Afterwards, or when salivation has occurred from debility from the first, tonics, as quinine and iron, will be advisable, while remaining ulcers should be daily touched with a concentrated solution of alum (three drachms of powdered alum dissolved in one ounce of water) or with vinegar applied by means of a feather or camel-hair brush.

[Recipes 102 and 103 should be procured and used if the alum gargle is not satisfactory.]

SCARLET FEVER, or SCARLATINA.—The latter word signifies precisely the same as scarlet fever. It is not a diminutive, and is not properly employed to denote milder cases, although its use in this sense is a common popular error. Scarlet fever is a contagious eruptive fever, generally occurring early in life. It seldom happens twice to the same person. The period at which the disease comes on after exposure to infection is from seven to ten days, although there are instances in which it shows itself much quicker. For twenty-four hours there is fever, sore throat, nausea, pains about the body, and perhaps vomiting and diarrhœa. On the second day the rash appears, spreading from the face and neck over the breast, trunk, and limbs. First, there are a multitude of minute red points. Then these run together, or others appear, until the whole surface is scarlet. The skin itches, and the tongue presents prominent red spots with fur between, or looks as if sprinkled with cayenne pepper. The whites of the eyes also sometimes become scarlet. If not previous to, then accompanying the eruption, sore throat, with difficulty of swallowing, commences. On inspection the tonsils are found enlarged, inflamed, and scarlet in appearance, or often coated with a white mucous deposit. Sore throat is indeed the main characteristic of scarlet fever, as cough is of measles. The rash generally lasts till the fifth day, when it begins to decline, disappearing on the eighth day, with much scurfiness of the skin. During the whole progress of the disorder there is considerable fever, and if the attack is severe there may be delirium. The duration of an ordinary case of scarlet fever is about fourteen days.

Scarlet fever is a dangerous disorder, on account of its liability to appear in aggravated forms. In one variety of the disease the tonsils inflame and suppurate, and the glands of the neck may do so also. The throat affection may extend to the ears, causing violent pain, or inflammation in those organs. In another variety of the malady the succession of symptoms is irregular, the face is dusky, the rash livid in colour, and the fever typhoid in character. The danger is then extreme, and the patient requires stimulants most urgently. In a third form of the disease, the fever and sore throat may appear without any rash. This variety is often fatal, and may be mistaken for diphtheria.

After almost any variety of scarlet fever the subject of the disease is very liable to different kinds of dropsy. The whole body may become swollen (*anasarca*), the urine scanty and smoke-coloured, and the kidneys affected as in Bright's disease; or there may be swelling of the abdomen only (*ascites*), or enlargement of one or more of the joints. Discharges from the nostrils, discharges from the ears, ophthalmic affections, troublesome diarrhœa, are also frequent sequelæ of scarlet fever.

The disease for which scarlet fever is most likely to be mistaken is measles, and the prominent symptoms of each are therefore given in contrast below.

MEASLES.	SCARLET FEVER.
Cold in the head.	None.
Hoarse cough.	None.
Eruption, crimson-coloured.	Vividly scarlet.

MEASLES.	SCARLET FEVER.
Eruption raised in crescent-shaped patches.	Not raised, not crescent-shaped.
Affection of the chest or bronchitis accompanying.	Affections of the throat accompanying.
It is very common in India.	Seldom occurs in India.

Scarlet fever may be further distinguished from the eruption of measles, or from erythema, or erysipelas, by the production of a white line on the skin by scraping it with a pencil, or the back of the finger nail. This white line lasts a minute or so and then disappears, a condition not produced in the other forms of skin affection mentioned.

Treatment.—The diagnosis of scarlet fever from measles is important, as in the latter disease the patient should be at first kept warm, in order to guard against affections of the chest. In scarlet fever the patient should be at first kept cool, until after the eruption shows, when cold may be complained of, and more clothing should be allowed. The patient should be placed in a well-ventilated room, and isolated to prevent the spread of the disease to others. During the preliminary fever alkaline medicine, as citrate of magnesia (*vide* p. 14), should be given, and the bowels should be opened by castor oil or senna for a child, and by sulphate of soda (Recipe 2) for an adult. When the eruption has fairly come out the use of violet powder, or sponging gently with tepid water, is often both grateful and beneficial. During the height of the disease the diet should consist of good broths and gruels, and when convalescence is established a more generous diet, with iron and quinine, should be allowed. When the throat is much inflamed or ulcerated, a poultice of linseed meal, or hot moist flannels, or sponges, may be applied externally, and a solution of alum of the strength of five drachms to the ounce of water should be brushed over the tonsils, or three or four grains of finely powdered alum may be blown into the throat from a quill or glass tube. The throat should also be well steamed internally several times daily, by permitting the steam of hot water to pass into the mouth. But in reality little good is effected in this disease by medicine. The ventilation of the sick chamber, the prompt removal of *excreta*, the support of the patient with good nourishing diet, especially in those cases where the throat is very inflamed, or when little or no eruption appears, and the avoidance of all causes of nervous or mental excitement, are the principal measures of cure.

It must be recollected that scarlet fever is very infectious. The patient, therefore, should be isolated from the first. The sick room should be cleared of all needless furniture or drapery (*vide* p. 683), and *all* the rules for disinfection given at p. 605 should be carried out.

Dropsical swellings, or other after effects of scarlet fever, must be treated as mentioned under the heads of the different ailments. If after scarlet fever any portion of the skin peels off in flakes, as is sometimes the case, anointing with sweet oil or glycerine will relieve the soreness.

SCIATICA.—Sciatica is a painful neuralgic affection of the large nerve passing down the back of the thigh. There is acute agonising pain extending from the buttock to the ham. It is known from rheumatism by the pain being limited to the course of the sciatic nerve, and by being little if at all aggravated by motion. But sometimes the muscles in the neighbourhood of the nerve are also affected with rheumatism, when the distinction is not so clear, as the pain is referred to the whole of the back part of the limb, instead of to a line nearly in the centre of that part, as occurs when the nerve only is implicated. It may originate from cold, or from sitting on a wet seat; or in more rare cases it is a consequence of constipation, being then produced by the direct pressure of fæcal matter in the bowels on the sciatic nerve, before it passes by the nates.

Treatment.—This consists in rest, wearing warm flannel drawers, hot fomentations, the use of the hot flat iron as recommended for stiff neck (*vide* p. 319), or small blisters over the more painful parts. Brisk purgatives, as Recipes 1 and 2, in full doses, should also be given to unload the bowels. In cases connected with rheumatism the treatment appropriate to chronic rheumatism should be employed. Galvanism may also be tried.

SCROFULA.—This is a depraved condition of body, most frequently hereditary, and is often indicated by two somewhat different, but common types. The *dark* type is characterised by a peculiar coarseness of black hair, a thick upper lip, wide nostrils, frequently ill-shaped features or hands, and ill-proportioned body and limbs. The scrofulous child thus marked may be weak in intellect, and is particularly liable to *enlargement of the glands* of the neck (*vide* p. 231), often ending in abscess; to *enlarged tonsils* (*vide* p. 390), to *discharges about the ear* (*vide* p. 167), to *ophthalmia* and *ulcers of the cornea* (*vide* pp. 181, 184), to *disease of the joints* (*vide* p. 268), and to certain forms of skin disease, especially *eczema* (*vide* p. 343). The child may also have crooked limbs from rickets (*vide* p. 319), and swollen belly from atrophy (*vide* p. 61). If it grow up it is pale, ill nourished, and still prone to eruptions, to swelling of the glands in the neck, to unhealthy ulcers, and to affections of the joints.

The second or *light* type of scrofula, to which the term *tuberculosis* has been applied, often exhibits what many call beauty. There is a thin skin, clear complexion, rosy cheeks and lips, blue bright eyes, large pupils, long eyelashes, silken hair, oval face, delicately chiselled features, small bones, and the veins are distinctly visible through the skin. The intellect is often powerful, and sometimes precociously developed. Children thus characterised are more liable to *atrophy* (*vide* p. 61), to *bronchitis* (*vide* p. 89), to *water on the brain* (*vide* p. 77), and, as they grow up, to *consumption* (*vide* p. 119), than to the maladies mentioned above, as most frequently found associated with the dark type first indicated.

Scrofula is produced by poor living and damp lodging, by unventilated apartments, combined, it may be, with drunkenness and venereal taints. Ill-advised matches between near relations are also supposed to engender scrofulous children. Good air, good food, and exercise may eradicate the taint. Cod-liver oil, iodine, and the various preparations of iron are the principal remedies. Any persistent cough or cold in scrofulous people is always suspicious, as such persons are particularly liable to disease of the chest or consumption.

SCURVY.—Formerly scurvy was regarded as altogether a disease incidental to sailors obliged to live for a lengthened period on salt provisions. But the scorbutic condition is very common in India, and in districts far removed from the sea. *Latent* or *hidden* scurvy is indeed much more prevalent than is generally believed; arising from the difficulty experienced in many parts of the country, and in many positions into which Europeans are thrown, of obtaining a sufficient amount of fresh vegetable diet. There are indeed extensive tracts in India where scurvy may be considered a disease of the soil. Wherever the ground is highly impregnated with saline matter, especially on the borders of the desert regions, and on much of the arid and sandy sea coasts—wherever from such causes there is insufficiency of nourishing and particularly of fresh vegetable food—especially if such localities are damp and low—there scurvy in a latent, or in a more or less decided form will be present. This is evidenced by the boils, sores of the mouth, debility, and dropsical swellings presently mentioned, so often met with in such districts.

But there is another cause why, among Europeans, the scorbutic taint frequently exists, either hidden or declared. Even those with a table well supplied with fresh vegetables often insensibly acquire a habit of eating less vegetable material as part of their daily food than they would do in

Europe. This partly arises from loss of appetite during the hot weather, so that a smaller quantity of food is taken than would be the case in a colder climate; the greater portion consisting of such aliment as soups, curries, and other dishes tempting to the palate, but which, not being solid, can be consumed without expenditure of physical force. Everyone who has been long in India must admit the truth of the foregoing, and will remember that during the hot season broths and liquid food could be often taken when a solid meal would be loathed. And soups and curries being mainly composed of animal constituents, a diminution of vegetable matter in the diet is the result.

But although the want of vegetable matter in the diet will induce scurvy, still this is not the sole cause of the affection. Experience leads to the conclusion that all insufficient, exclusive, or artificial diet, if long used, will induce symptoms of the disease; but more especially, and in a shorter period, if the defects of diet involve a loss of fresh succulent vegetables.

Another cause predisposing to scurvy, and existing in India, is the darkened dwellings in which so many persons exist during half the year. The hot wind, and with that the light, are shut out by the European, while the Native lives in a hut, or even the better classes in a house, probably with only small external openings. That the absence of sunlight is a strong predisposing cause of scurvy in Arctic regions is sufficiently proved, and there is every reason to suppose the same result occurs in the tropics.

The symptoms of scurvy when the disease has passed the latent condition, are, soreness of the gums, weariness, dejection of spirits, dull pains in the limbs, palpitation and shortness of breath. The tongue becomes pale, the complexion muddy, the lips bluish or livid, the eyes surrounded by a dark circle. The gums grow more affected, swollen, spongy, and bleeding on the slightest touch. The teeth are often loose, the breath foul, and as the disease advances blue spots, like bruises, appear on different parts of the body. Slight pressure or injury now produces a bruise, scratches become ulcers, and old wounds or scars open afresh. The joints become swollen and stiff, great emaciation takes place, hard dropsical swellings appear, diarrhœa or dysentery sets in, bleeding may occur from the gums, nose, or bowels, and the patient dies exhausted.

Scurvy may, however, evidence its presence in the system, by less decidedly characteristic symptoms. Thus the Delhi sore, the Scind boil, the Gwalior ulcer, the Aden boil, the Surat boil, the Burmah boil, may be frequently traced to the influence of those conditions of life previously mentioned, under which scurvy arises. *Secondly*, scurvy sometimes developes itself by ulcers of the mouth, and soreness of the tongue, the gums being unaffected, and no other symptom of scurvy being present. *Thirdly*, debility and palpitations of the heart with dropsical swellings, especially of the abdomen, may exist in badly fed people, partly as the result of starvation, and partly as the result of scurvy. *Fourthly*, there is the condition known as Beri Beri, in which the symptoms of scurvy are masked or (as it were) overpowered by those of dropsy. The peculiarities of this form of scurvy are so marked, as to render special description desirable (*vide* p. 330).

Treatment.—In all cases of scurvy, whether simply manifested by obscure premonitory symptoms, or when evident and confirmed, the use of fresh vegetables and of fresh meat is the great remedy. Lemon juice should also be taken, to the extent of two or three ounces daily, or, if this is unobtainable, nitrate of potash (the *shora* of the bazaars, *vide* p. 27), in ten-grain doses, may be given twice a day. As adjuncts, fruits (especially oranges, lemons, limes, apples, grapes and pummaloes), sugar and molasses, cocoa, pickles, vinegar, onions, all the *cruciferous* vegetables (as broccoli, kale, cabbage, turnips, mustard, cress, watercress, radishes, spoon-wort or scurvy-grass) and potatoes will be the most beneficial.

When debility is very marked the recumbent posture should be maintained, or otherwise faintings, which have proved fatal, may occur. Wine, ale, and beer, and a fresh infusion of malt, should also be given. If aperients are required, fresh infusion of tamarinds, cream of tartar, or sulphate of soda should be used. Ulceration of the gums requires astringent gargles of alum, or of port wine and water, or of decoction of pomegranate (*vide* p. 27). If diarrhœa persists, a milk diet is advisable, and syrup of bael (*vide* p. 23) should, if procurable, be taken as a medicine.

The cure of scurvy, when it is once established as a confirmed disease, is more difficult than its prevention, and the latter should be constantly held in mind by those placed in such positions as to be more than ordinarily exposed to scorbutic influences. The diet should be regulated so as to contain a proportion of antiscorbutic material, and if fresh meat and vegetables cannot be obtained in sufficient quantities, vegetables which may be kept—as potatoes, onions, or preserved vegetables, or bottled lime juice, or vinegar and milk—should be used daily. It is a standing order in the transport regulations, that soldiers voyaging in tropical climates, shall, after twenty days at sea, take a double quantity of sugar and lime juice daily, the amount at first being one ounce of each. Other preventive measures, whether on board ship or on land, consist in great attention to cleanliness, in ventilation, in a suitable degree of warmth, and especially in freedom from damp.

The form of scurvy known as Beri Beri.—Beri is the Cinghalese term for weakness, and the repetition of the word implies great weakness. The symptoms of beri-beri are great debility, stiffness of the legs and thighs, succeeded by numbness and swelling of those parts, with great difficulty in using the limbs. In the course of a few days, or even hours, the whole body becomes swollen, the breathing quick, and the pulse feeble, while the urine is very scanty, and the thirst great. Diarrhœa and insensibility generally terminate the illness.

The causes of beri-beri are exposure to cold, to night land winds, to damp and atmospheric vicissitudes, particularly when the person is debilitated by either declared or latent scurvy, or by poor diet. Beri-beri most frequently occurs in the persons of natives living on the damp sea-coasts of Western India, or in persons long confined on board ship, or in others who, proceeding into the semi-desert districts of the West, cannot procure the more liberal diet, and fresh vegetable material, to which they have been accustomed. Europeans very seldom suffer from the malady.

Treatment.—Medicines calculated to promote the flow of urine and to increase the action of the skin should be used. For these purposes, half a drachm of sweet spirits of nitre may be given in a little water three times a day, and eight or ten grains of Dover's powder at night. Counter-irritants, as a mustard poultice, should also be applied daily over the loins. Lime juice and fresh vegetables should form a main feature of the diet. Stimulants, as wine and brandy, will probably be required from the first, and should be freely given, to the extent of six or eight ounces of wine, and half that quantity of brandy, daily.

[Other medicines which may be procured for this affection are, Recipe 11 if the bowels are confined, and the person has not been previously in a weak state of health; Recipe 15 to relieve constipation in a weakly person. Then Recipe 72 may be substituted as preferable to the spirits of nitric ether alone as recommended above.

SCORBUTIC ULCER.—Trivial injuries in those affected with scurvy frequently cause ulcers, often of very foul and ill-conditioned appearance. Eating into the flesh, they sometimes produce great injury and disfigurement. They have often prevailed epidemically among troops and sailors who had become more or less scorbutic. These ulcers may attack any part of the body, and are generally attended with impaired appetite, foul tongue, spongy gums, and debility. The treatment consists in the employment of antiscorbutic remedies internally, and of the external application of various lotions or ointments, as Recipes 86 or 97.

[But a better application for a scorbutic ulcer is Recipe 96, or, if the sore is painful, Recipe 93, which should be procured for use.]

SEA SICKNESS.—For sea sickness there are many remedies of doubtful efficacy; none decidedly curative. Cold brandy and water benefits some persons, but makes others worse. Two drops of creosote on a lump of sugar will sometimes check the sickness. Five drops of chloroform on a lump of sugar, or in a glass of sherry, with half a tumbler of cold water, is often successful. Or chloroform globules, each containing about five minims of chloroform, may be procured from the chemist. Champagne suits some persons. Applying ice-bags to the spine will check vomiting for a short voyage, as across the English Channel. On commencing a sea voyage of any length it is well to empty the stomach, and to remove acidity with an emetic, composed of a teaspoonful of soda and a tablespoonful of mustard, in a large tumblerful of warm water; or several good purgative doses should be taken. This will render the person much less liable to sea sickness.

SKIN DISEASES.—These affections are very numerous, and have been subdivided until the list has assumed very lengthy proportions. But, practically, diseases of the skin may be divided into the five following heads:—

1. Rashes; or superficial alterations of the colour of the surface of the skin, generally of a reddish hue, and which do not proceed to the formation of watery secretion or matter.

2. Vesicles; which, commencing as little pimples, eventually contain a globule of watery fluid in the summit.

3. PUSTULES; which also, commencing as little pimples, eventually discharge matter.

4. SCALES; or SCALY ERUPTIONS, so called in consequence of flakes of diseased upper skin being cast off.

5. TUBERCLES; commencing as round bodies under the skin, which eventually ulcerate.

1. RASHES.—The rashes most commonly met with are *Ephelis*, or Freckles; *Erythema*, popularly known in some districts as *The Blush*; *Roseola*, called *Rose Rash*, or *Red Gum*; *Urticaria*, or *Nettle Rash*.

FRECKLES, OR EPHELIS.—These are little coloured patches, caused chiefly in fair people by exposure to the sun. They are not painful, nor injurious. They may be got rid of by avoiding exposure, and by using a wash made by beating twenty sweet almonds into a paste in a mortar, adding a pint of warm water, and then straining the emulsion; or, a wash composed of equal parts of lime-water and milk may be employed. The face should be sponged with the lotion, which should be allowed to dry on the skin. The latter may be cleansed with glycerine soap and water in half an hour, and prepared *white* fullers' earth may be applied.

ERYTHEMA, OR THE BLUSH.—This consists of light-red patches of various size and form, appearing in different parts of the body, and generally passing away in three or four days, or a week. There is always considerable itching, or tingling of the part affected. It frequently occurs previous to the first monthly flow, on the legs of young girls; and is then generally accompanied by aching in the thighs and legs, and by disordered stomach. It may also follow drinking cold water when the body is heated. It may accompany teething in children, and in infants generally attacks the thighs and genitals. It is not dangerous, and is rarely attended with fever. The bowels should be acted upon by a gentle purgative, the patient should be careful in diet for a few days, and prepared *white* fullers' earth, or violet powder may be applied.

Roseola, Rose Rash, Tooth Rash, or Red Gum.—This is a peculiar form of affection allied to erythema, occurring generally to children during teething, and which, although in itself a trivial ailment, demands attention, having frequently been mistaken for the more serious disorder measles, which it in some degree resembles. It is distinguished from measles by its occurring suddenly, without any prior cold, sneezing, or watering at the eyes, and by the eruption being in irregular patches of various sizes and forms, and not crescentic, or half-moon shaped, as the eruption of measles presents. It is distinguished from scarlet fever by the absence of sore throat. It is known from erythema by its more rosy tint. There are several kinds of roseola, only one of which, however, need be particularly mentioned, viz. *roseola annulata*, which appears, as the name implies, in rosy rings, enclosing a portion of healthy skin. It should be noted that sometimes the eruption of roseola precedes the eruption of small-pox, and when this latter disease is in the neighbourhood, and rose rash occurs to a child, it must be regarded as a suspicious circumstance, as the possible forerunner of small-pox.

Treatment.—Roseola seldom requires much medicine. If it presents in children, the gums, if swollen and painful, should be lanced; if the bowels are costive, they should be opened with a little castor oil or senna, and if there are symptoms of acidity of the stomach a few grains of bicarbonate of magnesia may be given. When the malady occurs to adults it will be generally in association with one or other form of dyspepsia, for which appropriate treatment will be needed.

Urticaria, or Nettle Rash.—This is an eruption resembling in appearance, and in the accompanying stinging pain, the condition of the skin produced by contact with nettles. But sometimes the rash commences as long white wheals, surrounded by a red band or margin, as if the part had been struck by a cane. The rash frequently appears suddenly; may last only a few minutes, or for a day or two, and may disappear as suddenly; or it may vanish in the daytime, returning at night. There is nearly always severe itching or tingling, which may be alleviated by applying sal volatile and water in equal parts. From the sudden manner in which it occurs, sometimes attended with vomiting and feverishness, it often excites considerable alarm; but it is not dangerous, and depends, in a great majority of instances, on improper diet or indigestion. In some persons it follows eating shell-fish; in others it has been caused by strawberries, cucumbers, or mushrooms. A very similar rash has also followed taking copaiba, or quinine, as medicines (*vide* pp. 19, 234). It often succeeds drinking cold water when the body is in a heated condition. In other cases the cause is quite obscure. Some persons are much more subject to this malady than others. If there is reason to suppose the stomach contains indigestible matter, as will probably be the case if the rash comes on after a full meal, particularly after a hearty supper or a late dinner, and especially if there is nausea and vomiting, an emetic should be given (Recipe 77). In other instances gentle aperients, as Recipes 1 and 2, will be generally sufficient.

2. VESICLES.—The principal diseases which may be classed under this head are: *Ringworm; Scabies*, or *Itch; Prickly Heat*, or *Lichen Tropicus; Prurigo*, or *Itching; Herpes*, or *Tetter; Eczema*, or *Running Scall*, also called, when in some positions, 'Grocers' Itch;' *Pemphigus or Pompholix.*

RINGWORM.—This is a *contagious* form of skin disease, commonly attacking the heads of children, but sometimes appearing on the face, body, or limbs.

Ringworm is a fungus (which has been named *trycophyton tonsurans*) and which belongs to the lowest species of vegetable growth. It is propagated by *spores* or germs, so small as to be discernible only under the microscope, and which insinuate themselves amongst the shafts and fibres of the hair and tissues of the skin. The very earliest symptoms of ringworm are a little redness or scurfiness on some part of the scalp, but these early symptoms most usually escape notice, or if seen are regarded as unimportant from some other cause. Then, in two or three days, there are circles of minute pimples, which also may not be recognised, until they, in the course of a few hours, turn into minute vesicles. These break and discharge their contents, producing a thin scab, which may be mistaken for scurf. Fresh circles of pimples and vesicles quickly form on the *outside* of the first crop, the disease spreading in circular-shaped patches; and it is only at this period that many children, whose hair is thick, are brought for treatment. As the malady goes on, partly from the discharge consequent on the eruption, and partly from the discharge induced by scratching, larger and thicker scabs form. Neglected ringworm may thus involve nearly the whole of the scalp; these latter stages being very similar to the disease described at p. 345 as *Scald Head.* There is, however, a peculiar condition of the hairs in the part affected, which serves to distinguish ringworm from any other head affection; which condition should always be searched for with a good magnifying glass, and plenty of light. The hairs over the affected spot appear as if rubbed off close to the scalp; the short portions remaining, looking dry, bent, or twisted, or running in a line different to that of the healthy hairs. On further examination with the lens they are seen to be lustreless, brittle, and often split. The hairs thus broken off are in reality dead; and when attempts are made to extract them, they often break again, the point of rupture looking ragged. When the root comes away and is placed under the microscope, the distinctive fungus may be recognised in the shape of bright, round, clearly defined, cellular bodies, about $\frac{1}{7000}$ to $\frac{1}{8000}$ of an inch in diameter, collected in chains or groups.

The most minute redness or scurfiness on the head of a child should always be regarded with suspicion, as the possible commencement of ringworm. When there is a scurfy spot on the head, although the place is *not* red; or when there is a red spot on the head, although the place is *not* scurfy, examination with a strong glass will often show either minute vesicles, or if at a later stage lighter-looking portions of hair shafts, which have escaped observation by the naked eye. If redness or scurfiness present on the heads of children who have been exposed to infection, the safest plan is to conclude ringworm may be present, and to use appropriate remedies.

Treatment.—In a case of suspected ringworm the child should wear a skull cap, and the head should be washed twice daily with carbolic acid solution (Recipe 117), or with carbolic acid soap, until it may be decided if the disease is really ringworm. Then the head for one inch round the part should be thoroughly shaved. After which the great object is the removal of the diseased hairs, which should be carefully extracted, one by one, with a pair of broad-nibbed forceps. Unless this is done very gently, but at the same time, firmly, the hairs will break, and the roots or portions of the roots, remain. The hairs removed should be carefully burnt. Then every particle of scaliness should be washed away with soap and water. Then strong vinegar or strong alum water (alum four drachms, water one ounce), or ink, may be applied to the part affected. Ink is a popular and useful remedy, the good effects resulting from the iron and tannin it contains. Whatever remedy is used should be gently rubbed on the scalp with the finger, so as to insinuate it into the holes, from which the roots of the hairs have been plucked, and in which the fungus vegetates. The application may be repeated for five or six days, once daily; a search for and extraction of broken hairs, not previously observed, being first instituted. This may cut the malady short; if not, the remedies mentioned in the small type should be procured. At the same time the general health of the child must be attended to, constipated bowels should be removed, and most usually tonics (Recipe 21) will be required.

The cure of ringworm may be regarded accomplished when the bad hairs have vanished, and when new, silky, downy hairs begin to spring up, and not before.

As ringworm is highly infectious, other children must be kept as much as possible away from the patient, and separate combs, brushes, towels, soap, and washing utensils, must be provided. Clothing and bedding used by the patient should be disinfected (*vide* p. 606), and the soiled things should be washed separately. If ringworm occurs in a school, or large family, the first thing is to institute a regular and periodical search on all heads, and the next thing is to *isolate* those affected. If this is impossible, the healthy should have their heads washed daily with carbolic acid solution (Recipe 117), and the hair should afterwards be anointed with some kind of greasy pomade. Plenty of brushing is also a precautionary measure of value; and extraordinary attention should be given to ventilation, of both living and sleeping rooms.

Lastly, it may be mentioned that, when ringworm occurs in schools, a suspicion may be entertained that the children are being underfed.

[If the above measures do not succeed, or in any case as soon as practicable, it will be well to obtain a remedy known as 'Goa Powder,' and which has also been advertised for sale under the term *Chrysaroline*. It is the powdered pith of an unknown tree growing in the Brazils, and first brought to India by the Portuguese. It is reputed to be an infallible remedy for Indian parasitic ringworm. When applying 'Goa Powder,' the diseased skin should be moistened with water, and a little of the powder should be rubbed on with the finger night and morning, until the cure is effected. There is also a solution of 'Goa Powder,' which can be applied with a brush, and which in some cases is more convenient for use. It discolours the skin less, and is therefore better adapted to cases in which the disease is on a conspicuous part. If the disease is on the face, care should be taken that the powder or solution is not applied too close to the eyes, as they may produce inflammation of those organs. The real 'Goa Powder' is scarce and much adulterated, and caution is therefore necessary in purchasing the remedy.

Other remedies for ringworm which may be tried in obstinate cases, are, iodine paint to be applied with a feather once daily, until the skin is blistered, or very tender. Nitrate of silver, which may be applied *very lightly* once, but which should not be repeated without the advice of a medical man. This application blackens and blisters the skin; the black appearance coming on, not immediately the nitrate of silver is used, but showing some hours afterwards. A solution of carbolic acid (ten grains to the ounce of water), applied with a brush, often cures the disease. This application may be repeated once or twice according to the effect it produces, desisting as soon as the skin is tender or blistered.

If these measures are not successful, mercurials may be resorted to, and an ointment, composed of equal parts of simple and mercurial ointment, should be well rubbed into the part for half-an-hour twice daily. The patent preparation known as 'Pearl ointment,' and composed of a mixture of lime and lard, is a very efficacious remedy in ringworm.]

SCABIES, OR ITCH.—Itch commences as an eruption of small vesicles about the size of a pin's head, or rather less, generally between the fingers, afterwards spreading to other parts of the body. It is caused by a small microscopical animalcule, which burrows under the skin in the neighbourhood of the vesicle. This insect is called the *Acarus scabiei*, and is round in shape, varying from one-seventh to one-quarter of a line in length and breadth. The itching produced is intolerable, especially at night. After itch has continued some time, or been neglected, it assumes the form of a pustular eruption, discharges matter, and may degenerate into open sores.

The female *Acarus scabiei*, being larger than the male, is sometimes visible to the naked eye, in the form of a greyish-white moving atom. When seen under the microscope it presents a tortoise-like shape, and is found to be studded with hairs and bristles, the head terminating with two pairs of mandibles. With these it burrows through the thinnest part of the *epidermis* or upper layer of the skin, selecting such spots as the space between the fingers, or the inside of the wrist, where the structure is thinnest and softest. Once fairly buried, it does not come out again, but burrows and forms galleries within the skin, where other insects are produced, which in their turn burrow and reproduce their kind. These burrows may usually be seen in the shape of dotted or zigzag marks on the skin, looking like faint needle scratches. It is, however, a disputed point whether the little vesicles marking itch are produced by the young insects making their way to the surface, or by a pernicious fluid ejected by the mites.

Treatment.— The parts affected should be first *well* washed with soap and water, which tends to open the burrows, and then *well* rubbed twice daily with compound sulphur ointment (Recipe 92). After three days the patient should take a hot bath and be well washed with yellow soap. Then the sulphur ointment should be again employed. Beyond opening the bowels if confined, no internal treatment is necessary. Itch is entirely a local disorder, and not curable by medicines. It is a popular impression that the itching arises from some impurity of the blood, so loth are people to admit faults arising from uncleanliness; which, if not originating the insect causing the disease, certainly favours its location in the skin.

When the hands only are affected, they should be well washed, and rubbed with the ointment, and then enclosed in a bag of oiled silk all night, and the rubbing repeated in the morning, after a good washing with soap and water.

The itch insect dies very soon after it is removed from the body; but, as a matter of precaution, the clothing of persons with itch should be disinfected. This may be done by baking in an oven at a temperature of 140° Fahr., or by the fumes from burning sulphur (*vide* p. 608).

PRICKLY HEAT, OR LICHEN TROPICUS.—This is probably the first complaint a new-comer to India suffers from, and although unattended with danger, it is often very distressing and annoying. The symptoms are—itching, tingling, pricking, and sweating, while the skin is covered with a bright red eruption, presenting at some stages of its progress little watery heads or vesicles, which afterwards contain a little white matter. The eruption is deepened in colour by exercise, or by hot drinks, as tea, causing perspiration.

Prickly heat may be regarded as rather salutary than otherwise, as indicating a free action of the skin, and the eruption should not be suddenly checked. Light clothing, temperate diet, and an occasional aperient, are the remedies. As local applications, equal parts of sal volatile and water will be found to allay itching; or two drachms of bicarbonate of potash in half a pint of water. Rubbing the skin with a rough towel tends to the same result, the heads of the little vesicles or pustules being broken, after which they do not itch. Children suffering badly from prickly heat should be limited to farinaceous food, as bread, rice, sago, arrowroot, with milk, and a little broth. If thirsty and feverish, citrate of magnesia may be used as a drink (*vide* p. 14).

Prurigo, or Itching.—This is an affection of the skin, in which intense itching is the most prominent symptom. Sometimes the parts affected present to the naked eye no deviation from the natural state, except redness or scabs produced by scratching. But more commonly they are covered with pimples or vesicles, raised above the surface of, and redder than, the skin. The affection generally attacks the posterior parts or privates, but sometimes occurs in the flexures of the limbs, or more rarely on the shoulders and back. It is very common among old people and children; it frequently occurs to women during pregnancy (*vide* p. 313); and also in diabetes (*vide* p. 139), and is always worse at night.

A variety of the malady is known as *Prurigo formicans*, when there is not only an intolerable itching at one or more parts, but the patient also complains of a feeling like the creeping of ants or the stinging of insects (hence the specific name) over the whole body. These latter sensations are more generally complained of by Natives than by Europeans, and are sometimes so distressing as to prevent sleep. The principal causes of this affection are debility, want of cleanliness, and friction or irritation of the skin.

Treatment.—In the treatment of this malady, if severe, attention must be paid to the diet. All stimulating condiments or drinks should be forbidden, and only plain, easily digested food allowed. Internal remedies are seldom of much use, excepting opium or chloral, which may be required to procure rest. The local applications recommended are very numerous, but probably cold lotions (Recipe 97) or ice-cold water are the best. When this troublesome local itching occurs, the absence of lice should be ascertained, for it sometimes arises from their presence, and can then only be cured by destroying the insects (*vide Lice*, p. 554).

Herpes, or Tetter.—There are different varieties of this eruption. It often occurs on the lips, in the shape of five or six little vesicles on an inflamed base, which burst and form a scab. The foreskin is another part not uncommonly thus attacked. The number of vesicles, sometimes ten or a dozen, and the attendant itching which is often very troublesome, serve to distinguish *herpes* of this part from more important affections (*vide* p. 401). Less frequently, *herpes* occurs along the branches of the nerve supplying the forehead, when there are numerous rings of vesicles and much stinging pain. The most serious variety is that called the *Herpes Zoster*, or ‘Shingles.’ In this form of herpes, a line of vesicles rises, reaching from the spine round the lower part of the chest to the breast bones. This is often accompanied by severe shooting pain and feverishness. The vesicles form, burst, and scabbing takes place, the whole process lasting about one fortnight. Indigestion is the most usual cause of all varieties of herpes. The *first two forms* mentioned rarely require medical treatment. For the *two latter* the bowels should be kept open, the diet regulated, and an alum lotion (Recipe 97) applied. If the pain is great, a strip of lint, wet with poppy water (*vide* p. 591) may be placed over the affected part.

ECZEMA, OR RUNNING SCALL.—There are various degrees of eczema. It occurs as an eruption of small raised vesicles crowded together on broad irregular patches of bright-red skin, accompanied by much itching, tingling, and smarting, and usually presenting in the flexures of the limbs, as the groins or armpits. The fluid in the vesicles soon becomes milky and turbid, and in four or five days the vesicles burst, when the fluid is discharged and dries into thin yellowish-green scabs. Fresh vesicles form on the surrounding skin, while the parts already affected remain sore. The duration of this malady may be from a week to months, or more. The cause may be indigestion; it also may arise from heat, on a fair and tender skin, when it is called *eczema solare*, or 'heat spot.' It also arises from the handling of dry powders, or from handling certain metals. From its frequently affecting the hands of grocers, who handle sugar, it has in such cases been called 'Grocers' Itch.' It also appears sometimes to be induced on the hands of bakers by flour; and on the hands of bricklayers by lime: hence it has been called 'Bakers'' and 'Bricklayers'' 'Itch.' It is also sometimes called 'salt rheum.'

In children it may be connected with teething, and may appear behind the ears; in females it may be connected with irregular and painful monthly courses. Eczema often assumes a chronic form, recurring in different parts of the body, at certain seasons, as the spring and fall. In such cases the cause is always obscure.

Treatment.—This consists in attention to the general health, in the removal of indigestion, and in measures adopted against any evident irregularity in the monthly courses of the female. As a local application, olive or salad oil should be smeared on the parts, and if there are scabs or crusts a hot linseed-meal poultice should be applied at night.

The scabs will come off with the poultice in the morning, and oil may be again applied. The parts may be occasionally sponged with hot water and glycerine soap, but only when cleanliness requires it. As scratching irritates the parts, it should be refrained from.

[If the above-mentioned applications are not satisfactory, glycerine should be procured and used instead of the oil. If the malady still persists, lead ointment (Recipe 96) may be applied. In some cases, an ointment composed of thirty grains of sulphate of zinc, mixed in half an ounce of simple cerate, is more beneficial: an ointment composed of white precipitate one drachm, simple cerate one ounce, is successful in many instances: in others, greasy applications do not suit, and the lotion (Recipe 97) may then be used. When eczema attacks children behind the ears, an alkaline wash (Recipe 99) is often very useful, but in such cases attention to teething, if in progress, will be also necessary. When in adults, the eczema persists after the acute stage has passed away, the malady becoming what is called 'chronic eczema,' the *liquor arsenitis potassæ* (Recipe 27), should be given three times a day, and continued until itching, or watering of the eyes, redness of the whites of the eyes, stiffness of the eyelids, or griping pains in the bowels, indicate that the medicine has affected the system. When arsenic solution is given in this manner, it should be taken about a quarter of an hour after each meal.]

PEMPHIGUS OR POMPHOLIX.—These names have been given to a peculiar blister or *bleb*, which forms on different parts of the body, and occurs especially to children. The first change noticed consists in the appearance on the back, belly, or limbs, of red circular spots, which itch and burn. In a few hours, at the middle of the spots, small transparent vesicles arise, which quickly enlarge, and soon cover the whole of the red patch, excepting a narrow margin. The blebs are round or oval in shape, and may attain the size of a pea, or even of a hen's egg. The contents, at first transparent, gradually become turbid, and in two or three days the blebs burst; the place then becoming covered with a scab, under which the skin heals. Before the first blebs heal, new ones form, and the disease may continue in this manner for several days, or for some weeks. Occurring in infants, *pemphigus* usually appears to depend on *disordered stomach* (*vide* p. 361). In adults it may be preceded by a period of dyspepsia or debility from various causes; but sometimes the patient looks and feels well throughout the attack, until exhausted by constant recurrence, and the loss of sleep caused by the itching. The treatment consists in attention to the general health, and in the remedy of any digestive disorders. The diet should be liberal. Local treatment consists in puncturing the blebs with a fine needle, and in protecting the parts from injury from the clothing sticking to them, by the use of simple dressing (Recipe 86). For some time afterwards, a stain remains on the skin, but there is no permanent scar.

3. PUSTULES.—The chief pustular affections, *i.e.* those from which eventually matter is discharged, are *Scald Head*; *Impetigo*, or *Crusted Tetter*, called also *Scall* and *Cowrass*; *Acne*, or *Copper Nose*; *Sycosis*, or *Chin Welk.*

SCALD HEAD.—Scald head is a contagious disease, caused by a fungoid parasite which attacks the skin and grows near the root of the hairs. The affection commences with a slight itching and redness, followed by a red-coloured eruption, palpable also to the touch. The eruption is not circular in shape like ringworm, but of irregular and undecided form. In about twelve hours each little red point of which the eruption is composed contains a small globule of yellowish watery fluid. This and the subsequent thicker secretion drying on the surface of the skin assume a honeycombed appearance, some part of the scab being depressed and some elevated. The crust is often perforated by hairs, and frequently presents the appearance of a series of concentric rings. As the disease advances the secretion becomes more thick and copious, until there may be a layer of yellowish-looking scab or crust over the whole head. In still more advanced stages of the disease, or when the malady has been neglected, sores and ulcers form on the scalp, underneath its scabby covering, and which have even affected the bones of the skull. The disease is sometimes called 'crusted ringworm,' or *porrigo.*

Treatment.—If the malady is recognised sufficiently early, the treatment advised for 'ringworm' (*vide* p. 337) should be employed. If nothing has been done until scabs have formed, the head should be poulticed and bathed with hot water, until the whole of the scabby matter is removed, and the surface is quite clean. Then oil or glycerine should be applied, and the scalp should be covered with a close-fitting skull-cap. At the same time, constitutional treatment in the shape of laxative medicines, if necessary (as senna or castor oil), should be employed; and, as a general rule, it will be desirable to give quinine, as the children suffering from scald head are usually weak and debilitated.

As when ringworm is present, the child with scald head should be isolated as much as possible, and should be provided with separate brush, comb, and washing conveniences; while other preventive measures, as recommended for ringworm, should be employed.

[For scald head it will be desirable to use carbolic acid ointment (Recipe 93). On this not being successful, an ointment composed of one drachm of tar and one ounce of simple cerate may be employed.

If the malady is noticed at the commencement, when there is only a little itching and redness, it may perhaps be cut short by the application of nitrate of silver or iodine paint, as recommended for ringworm. But, unfortunately, scald head is seldom recognised at the earliest period. As it does not commence, like ringworm, in any particular shape, but as an irregular reddened patch, if even noticed, it is often regarded as only flea bites, or some other trivial irritation.

IMPETIGO, OR CRUSTED TETTER, called also *Scall* and *Cowrass.*—This affection is very similar in appearance to scald head; but may occur in any part of the body, and has not yet been discovered to be due to any parasite or fungous growth. It appears in clusters of small pustules, slightly raised above the skin, which burst in three days and discharge a thick fluid, which hardens into thick yellow incrustations, resting on an inflamed base of skin. The eruption may disappear in a few days, or it may last weeks or months, or recur for years, being worse at the spring or autumnal seasons. There is heat and itching of the parts affected, and occasionally febrile feelings. The causes are not well understood, but the disease frequently accompanies disorders of digestion, and is aggravated by want of cleanliness.

Treatment.—This consists in attention to the general health by the avoidance of food likely to induce dyspepsia, by exercise, and by occasional medicines, as Recipes 1, 2 for adults, and senna or magnesia for children (*vide* pp. 14, 28).

[If the malady persists, adult patients should take arsenical solution (Recipe 27), as recommended for chronic eczema. The itching may be alleviated by an opium lotion, containing half an ounce of spirits of wine, half an ounce of tincture of opium, with twelve ounces of water. In chronic impetigo, sulphur baths are useful. Also *white precipitate* ointment may be procured and used.

ACNE, OR COPPER NOSE.—This consists of isolated pustules, on a hard red base, most frequently seen on the nose, but sometimes occurring on the cheeks, forehead, or chest. It is generally connected with dyspepsia, with excess of eating or drinking, and in women with uterine disorders, or with the 'change of life.' The treatment consists in proper regulation of the diet and the mode of life generally, particularly as regards exercise, and in the relief of dyspeptic symptoms, or of symptoms referable to derangements of the womb. Acne pustules are sometimes called 'blackheads,' and the contents are erroneously supposed to be 'grubs'; being in reality compressed matter, the end of which has become blackened by exposure to the air.

SYCOSIS, OR CHIN WELK.—This commences with redness or smarting of the skin of the lips or chin, on which pimples appear, which eventually slowly come to a head and discharge matter. Fresh crops of such pustules occur for many weeks, until, in bad cases, the beard falls off in patches. The causes of this malady may be often traced to errors of diet. The hair should be cut close, poultices applied till the surface is clean, afterwards carbolic acid ointment (Recipe 93) should be procured. Aperient and alterative medicines, as Recipes 1, 2, 55, should also be given.

4. SCALES, OR SCALY ERUPTIONS.—The principal scaly eruption is *Psoriasis*, or *Dry Tetter*, of which there are two forms. The first form begins as small round shining, itching spots, soon becoming covered with thin white scales, which, falling off, leave the skin beneath slightly tender and reddened. The spots increase in size, but retaining the circular shape until they attain several inches in circumference, when they become broken and assume the form of irregular scaly patches. This circular form of the malady is sometimes called *lepra*.

In the second form the disease commences as irregular scaly patches without the prior ring-like appearance. It frequently attacks the flexures of the limbs, and the inner surface of the thigh and armpits. When the hands are affected, it is often confounded with eczema of such parts, and has also been called 'Grocers' Itch' (*vide* p. 343).

The causes are not well understood. At some times it seems to depend on digestive disorders, appearing and reappearing with such affections. At other times no cause can be assigned. The treatment requires attention to the general health, as the avoidance of any article of diet known to induce dyspepsia, and the relief of constipation if present by laxative medicines, as Recipes 1 and 2.

[It will also be desirable to procure Recipe 55, and after the acute stage has passed away, arsenical solution (Recipe 27) as recommended for eczema. Itching may be relieved by an opiate lotion, as recommended for impetigo. The patent 'Pearl Ointment,' as recommended for ringworm, may be rubbed in with advantage. Sometimes mercurial ointment diluted with a similar quantity of simple ointment is beneficial. At other times sulphur ointment (Recipe 92).]

5. TUBERCLES.—The principal tubercular form of skin disease met with in India is tubercular *leprosy* (*vide* p. 273).

SLEEPLESSNESS.—Is technically known as *Insomnia*, and is a most troublesome condition. There may be no desire to sleep, or a dread of going to sleep, or the slumber may be restless or disturbed. Sleeplessness is a symptom of many diseases, and in delirium tremens (*vide* p. 134), and in chronic alcoholism (*vide* p. 137) it is a prominent condition. In the absence of any special disease, sleeplessness may arise from dyspepsia, mental anxiety, mental excitement, late meals, taking tobacco or strong tea or coffee at night, want of exercise, close unventilated rooms, too soft or too hard beds, and in India from heat and mosquitoes (*vide* p. 639). Every case must therefore be treated on its own merits. The dyspeptic should not go to bed with an undigested meal on the stomach, and should avoid tobacco, tea, and coffee at night. Regular hours of retiring should be adopted, so that the force of habit may be enlisted. Exercise is essentially necessary, and should be taken to the verge of fatigue. The work of the day should be dismissed from the mind, and any excitement, such as reading works of fiction at night, should be avoided. The bedroom should be well ventilated, the bed should be in the middle of the room, and curtains should not be used. A glass of water taken before retiring often does good; but a 'night cap,' in the form of stimulants, is only of temporary benefit. Medicines which produce sleep, as chloral, are only to be employed in those cases of sleeplessness, when the digestive organs are in good order, and the bowels freely open. Then an occasional dose of chloral may be used; but the habit of taking chloral is pernicious, and must not be indulged in (*vide* p. 9). A hot-water bottle to the feet, particularly when these parts are cold, is advisable.

The results of continued loss of sleep are debility, exhaustion, mental disquietude, and hypochondriasis. It may also be a premonitory symptom of some form of insanity.

SMALL-POX.—This is a severe contagious eruptive fever, generally occurring but once in life. From the period of the formation of matter, until the skin has become quite free from scales, is the time during which the disease is most highly contagious, although a person may convey the affection even up to thirty days after such period. Infection may also be conveyed by various articles, especially by clothing and bedding. The period from exposure to infection to the appearance of the disease, is ordinarily twelve days. The early symptoms are shivering, alternating with burning heat, often vomiting, headache, pain in the back and loins, and fever, the pulse becoming quick and the skin hot. If now the finger is pressed on the forehead, a shotty feeling may be noticed before the eruption is visible. In adults the bowels are most frequently constipated during the whole time of the disease; in children there is frequently diarrhœa at the commencement. After two, or perhaps three days, an eruption of raised red spots appears on the face and forehead, and this is usually attended with some diminution of the febrile symptoms. It is found that the longer the eruption is in appearing, the less serious does the disease prove. On the third and fourth days the eruption spreads over the body; on the fifth day each pimple becomes a vesicle with watery head, round base, central depression, and inflamed margin. This central depression is characteristic, and distinguishes the malady from modified small-pox or chicken-pox. During the next three days matter forms in the vesicles, and they are more prominent. When matter has formed, the peculiar and unmistakable *smell* of small-pox is present. If the case is severe the face is much swollen, and the eyes are closed by the swelling. About the tenth day, the pustules, first on the face, later on the hands and feet, begin to dry up, and about the fourteenth day they form scabs; these fall off from the twentieth to the twenty-third day, leaving the skin of a reddish-brown colour. Frequently scars or 'pits' are left by the healing of the pustules. As the eruption attains its height, or 'point of maturation,' the fever generally for two or three days very much increases; this is called the *secondary fever* of small-pox, and usually occurs on or about the eleventh day, which is the period in bad cases of the greatest danger from exhaustion. In some few instances the eruption of small-pox is preceded by an eruption known as *Roseola*, or *Rose Rash* (*vide* p. 334).

In very bad cases of small-pox the pustules are so thick on the skin that they almost or quite join; the disease is then said to be *confluent*. In such instances the fever is much more severe, and there is delirium, and the patient may die insensible. In severe cases of the malady the eruption may be observed in the nostrils, on the tongue, and in the mouth and throat, and there is profuse flow of saliva, and great swelling of the hands and feet. Children, especially if teething, may be attacked by convulsions, generally about the period of the commencement of the eruption.

Small-pox sometimes occurring after vaccination, or after a previous attack of small-pox, is spoken of as *modified*. The course of the disease is mild, and the symptoms are scarcely to be distinguished from chicken-pox (*vide* p. 100).

Small-pox not unfrequently leaves after effects, which show themselves in a succession of boils, in disease of the eyes terminating often in loss of vision, in formations of matter about the joints, or in a weakened condition of system from which the patient is long in rallying.

Treatment.—The sick person should be as much as possible isolated, if practicable, in a separate building. The room should be well ventilated, but not kept too cold, and *all* the rules regarding disinfection given at p. 605 should be carried out, *both during the disease and afterwards.*

Little good can be done by medicines, excepting the moderation of the fever. The eruption must run its course and pass through definite changes. The bowels should be kept moderately open by aperient medicines, and cooling citrate of magnesia draughts (*vide* p. 14) should be given.

The legs and arms may be occasionally sponged with warm water. The diet should consist of milk-tea, gruel, beef-tea, or chicken broth. When the pulse is weak and the strength fails, symptoms most likely to present with the secondary fever about the eleventh day, stimulants, as wine and ammonia, may be required. During convalescence quinine is useful.

There have been many experiments tried with the view of preventing the 'pitting' or scars resulting from small-pox, but it is doubtful if much good arises from these applications. Flour or starch may be abundantly dusted over the face and body, which will relieve itching and discomfort, and absorb discharge. Olive oil and cold cream are also good applications. But in bad cases of small-pox, notwithstanding any application, there will always be some marking left. The patient should be as much as possible prevented from scratching, and if a child, the hands should be muffled, as the irritation from scratching increases the after marks.

[To lessen 'pitting,' the best plans would seem to be, when the disease is slight, touching each pustule before ripening, or about the sixth day, with nitrate of silver, or smearing mercurial ointment over them. If the pustules are very numerous, these plans are not to be recommended. Then a better application is carbolic acid one part, salad oil ten parts, to be well mixed and applied over *one half* the body daily. The carbolic acid tends to destroy the unpleasant fœtor, and also moderates the violence of the suppurative process. When the pustules have burst, the consequent itching and irritation may be relieved by sprinkling the parts with violet powder, or oxide of zinc, or a mixture of both.]

Vaccination.—Although the cure of small-pox is not practicable, its prevention is sufficiently easy by vaccination, the origin of which is as follows.—About the beginning of the present century, a dairymaid in the West of England informed Dr. Jenner, that persons becoming inoculated with cow-pox were not liable to small-pox. Jenner, following up this information, found it true; and the practice of vaccination for the cow-pox rapidly displaced the former system of inoculating people from others suffering under a mild attack of small-pox, in order that they (the inoculated persons) might take the disease mildly also—a result, however, which did not always follow. 'Cow-pock' is a mild local disease, communicable by inoculation from a cow to a human being, and from one human being to another. It is supposed to be, in reality, small-pox deprived of its virulence by passing through the system of the cow. It is not contagious through the air. It produces no ill effect, and yet the person who has had it is as much protected against small-pox, as if he had had that disease. If the latter affection is taken after cow-pox, which sometimes happens, it is always mild and modified, scarcely ever leaving any injurious results on the constitution, and is rarely fatal. While the death-rate from small-pox in the London hospitals for a period of fifteen years was 35 per cent., the deaths among those vaccinated, and who had taken small-pox afterwards, was only ·55 per cent. In unvaccinated communities, small-pox attacks 90 per cent. of the population, while among the vaccinated only ·60 per cent. are attacked. In London, before the period of vaccination, every tenth death was due to small-pox; now only one in every eighty-five is caused by this disease. Out of thirty vaccinated nurses employed in the Small-pox Hospital, not one ever contracted the small-pox. All experience and statistics show that vaccination protects the individual, and greatly diminishes the amount of small-pox in the community. Under such circumstances, persons objecting to vaccination must be either grossly ignorant, or must deliberately prefer a loathsome disease and chance of permanently injured constitution, or death. If the children of such persons die from small-pox, the parents are virtually as guilty of their death as though looking on while the children poisoned themselves with arsenic. Stating evil effects have followed vaccination when improperly performed, or when performed from, or on, diseased children, that small-pox sometimes follows vaccination, that the introduction of a disease artificially, even although so mild as cow-pox, is immoral—stating these and other adverse arguments is simply to assert that vaccination is, like all other human contrivances, not altogether perfect. And it would be at least as rational to decline riding in a railway-carriage, because, when improperly driven, or when material is bad, accidents occur.

It should be recollected that the period after vaccination is ordinarily the time when, with the commencement of teething, children are most prone to various affections. It is true that the slight disturbance caused by vaccination is occasionally sufficient, at this particular period, to determine the appearance in delicate subjects, of eruptions on the skin or head, just as a common cold or digestive disturbance would occasion them. But the vast majority of ailments which have been ignorantly attributed to vaccination have no possible connection with it, although they may have coincided in the matter of time.

Healthy children should be vaccinated as soon as possible —certainly within three months after birth, or prior to the commencement of teething; and when small-pox prevails, at a much earlier period. If, however, a child suffers from disordered bowels, or from eruptions of the skin, or is weakly, and there is no small-pox about, it may be desirable to postpone the operation till after most of the teeth have appeared. In India the cold season is the best time for vaccinating, and in some parts of the country the operation cannot be performed with any certainty of success during either the hot weather or rains. Vaccination should be accomplished by taking the lymph from the vesicle of one child on the seventh or eighth day, and inserting it into the arm of another child by three or four pricks or scratches with a lancet, or by using the modification of the cupping scarificator recently designed for the purpose. Care must be taken that no blood is mixed with the lymph taken from the vaccinated child.

There is no reason why the arm should be preferred, excepting that it is perhaps a more convenient place than any other part of the body. On the second day a small red spot may be observed at each scratch of the lancet. On the fifth day, there are circular pearly vesicles containing a limpid fluid. On the eighth day these are fully developed, the centre of each being *depressed*, with an inflamed red ring around, of the breadth of from one to three inches. There is probably slight fever, often some swelling of the arm, and sometimes enlargement of the glands in the arm-pits. On the eleventh day the pustules burst, leaving a scab. About the twentieth day the scab falls off, leaving permanent scars or ‘pits.’ If these symptoms (excepting the enlargement of the glands in the arm-pit) do not present, particularly if the red ring or *areola* is not well developed, the operation is not successful, and confers no protection. Vaccination should be performed at least twice in life, viz. in childhood, and about the age of seventeen.

During the progress of the vaccine pustule great care should be taken lest the child rubs or scratches the part. If this occurs, there may be a troublesome sore, and much redness about the arm-pit, or even down the arm, or on the side of the chest, with enlargement of the glands in the arm-pit. Under such circumstances it may be necessary to apply a bread poultice until the sore is clean and healthy, after which simple ointment (Recipe 86) is the best application.

Modified Small-Pox.—This is the term applied to small-pox occurring, as sometimes happens, after vaccination, or after a previous attack of small-pox. There is generally for three days more or less feverishness, debility, sickness, and headache. Then the eruption shows itself, and the protective value of previous vaccination, or of previous small-pox, becomes evident. In a case of unprotected small-pox, the progress of the eruption is often attended by aggravation of the feverish symptoms; but in modified small-pox, when the eruption shows itself, the patient feels better, and generally begins to recover from that date. The eruption of modified small-pox varies materially from the eruption of unprotected small-pox. The former may consist of a few pimples, or a few vesicles (containing water only) or a few pustules. Often the vesicles dry up about the fifth or sixth day without becoming pustular, a condition which has given rise to the popular terms 'Horn-pock' or 'Wart-pock,' sometimes applied to the malady. The small-pox pustules, on the contrary, pass through a definite course, and, instead of subsiding as pimples or vesicles, always suppurate. Lastly, modified small-pox does not emit that peculiar nauseous odour characteristic of small-pox, and there is no *secondary fever*, or increase of fever on the subsidence of the eruption. Chicken-pox (*vide* p. 100), or 'Crystalline pock,' so called from the bright clear appearance of the eruption (consisting of vesicles containing water), is by many considered to be modified small-pox, but, notwithstanding the similarity of the maladies, this conclusion may be questioned. It is right to add, that modified small-pox is contagious.

Treatment.—The treatment of modified small-pox consists in securing free ventilation round the sick person, who should be isolated as much as possible. Aperient medicines, as Recipes 1, 2, and cooling medicines, as citrate of magnesia (*vide* p. 14), may also be given.

SPASM.—Spasm is the sudden, involuntary, contraction of a muscle; which contraction may be continuous, or more or less relaxing, or altogether ceasing during intervals. Spasm may be *general*—that is, numerous muscles may be affected—as occurs in convulsions (*vide* p. 121); in epilepsy (*vide* p. 174); in tetanus (*vide* p. 385); in *hydrophobia* (*vide* p. 256). Or spasms may be *local*—that is, confined to one muscle or set of muscles—of which spasmodic asthma (*vide* p. 57); spasmodic *colic* (often called spasms or cramps of the stomach) (*vide* p. 110); spasmodic stricture (*vide* p. 366); hiccup (*vide*

p. 253); squinting (*vide* p. 188); club foot (*vide* p. 109); and *cramps in the legs* during cholera (*vide* p. 101), are examples. The treatment of spasms will therefore be found under the headings of the different maladies of which they form a part.

Spasm or cramp in the legs alone requires special mention. The attack is usually sudden, and most frequently occurring in the night. The muscles of the calf are drawn into knots which may be felt; there is intense pain; and the parts frequently feel sore for some time afterwards. Sometimes the thighs also are attacked. The malady is most prevalent in elderly people, but it often occurs to pregnant females. In the latter case it is dependent on pressure by the enlarged womb on the nerve (*sciatic*), which afterwards divides into various smaller nerves to supply the legs, and the cramps will cease when that pressure is removed by the birth of the child. In other cases, pressure is occasioned by constipation and the consequent collection of fæcal material in the lower bowels. For such cramps constipation must be avoided by the appropriate remedies (*vide* p. 114), and any dyspeptic symptom present should also be treated (*vide* p. 163). Locally, the best plan is *brisk* rubbing with salad oil and brandy in equal parts, or, if available, with soap and opium liniment. But in cases where the cramps depend on pregnancy, the rubbing should be *gentle*, as the enlarged veins generally also present, during pregnancy, might be ruptured by too hard rubbing (*vide* p. 311).

SPINE, CURVATURE OF THE.—There are three principal varieties of spine curvature, viz. to either side, forwards, and backwards, but the lateral curvature is most common. It occurs chiefly to young females, who are said to overgrow their strength, and the first sign is probably one shoulder being observed higher than the other. Preventive measures are, care against constrained positions, as during writing, for instance, so frequently fallen into by children. Also against the practice of raising children by placing the hands under their arm-pits, and letting the whole weight of the child's body drag on the shoulders. Children should be ordinarily raised by placing one arm under the buttocks; and they should never be hauled about by one arm, as some nurses are in the habit of doing. In all instances of threatening spine curvature, exercise short of fatigue, avoidance of strained positions, much rest in the recumbent posture, attention to the general health, with liberal diet, and tonic medicines, are the requirements.

SPITTING OF BLOOD.—Blood proceeding from the mouth may come from very different sources. It may be from the throat or tonsils, in which case the quantity brought up is small, and the bleeding part, probably an ulcer of the tonsils, may be easily seen. This is of little consequence, and requires no particular treatment. Or, blood may come from the gums, as during scurvy, when it should be treated by the remedies proper in that disease. Or, blood may proceed from the socket of a tooth which has been extracted (*vide* p. 448). A much more serious form of spitting of blood is when the fluid comes from the lungs. This form of disease is known as *hæmoptysis*, and is often a symptom of *consumption.* Frothy bright-coloured blood is coughed up, and there may be pain and uneasiness of the chest. In such circumstances perfect quiet is necessary, and half a tea-spoonful of salt in a little water may be given every five minutes, till nausea is induced. Or, if at hand, five grains of ipecacuanha in an ounce of water, till the patient feels sick. Afterwards, Recipe 58 should be procured and taken; also cooling iced acid drinks, of which the best is lime or lemon water, made with fresh limes or lemons.

Hæmoptysis or *coughing up* bright frothy blood, must be distinguished from *hæmatemesis*, or loss of blood from the stomach. This generally occurs in consequence of some ulcer in the coats of the organ eating into a blood-vessel. In all such cases the blood is *vomited, not coughed up*, and its colour is almost black, like coffee-grounds—*not* red. It is generally preceded or accompanied by paroxysms of burning boring pain in the stomach, and if the ulcer is large, the loss of blood is often sufficient to cause alarming faintness, for which, however, stimulants must *not* be given. The great point is to keep the stomach at rest, so as to allow the ulcer to heal, or, at least, the ruptured vessel to become plugged up. This will not take place if the stomach is excited to action by food, or if the circulation is excited by stimulants. Ice should be swallowed in little lumps, fluid food, as broth or milk, should be given in spoonfuls at intervals of a few minutes, and alum mixture (Recipe 58) should be administered. In very severe cases *all food* should be given in the way of nutrient enemata by the rectum, thus affording the stomach perfect rest. In cases of either *hæmoptysis* or *hæmatemesis*, medical aid should he sought immediately.

The distinctions between bleeding from the lungs and bleeding from the stomach are placed in comparison below:

Hæmoptysis, or bleeding from the lungs.	*Hæmatemesis, or bleeding from the stomach.*
Difficulty of breathing, pain in chest.	Nausea, pain and tenderness at the pit of the stomach.
Blood coughed up in mouthfuls.	Blood vomited profusely.
Blood frothy.	Blood not frothy.
Blood of a florid red colour.	Blood dark-coloured.
Blood mixed with saliva.	Blood mixed with food.
No blood passed by stool.	Blood often passed by stool.
Cough and bronchial symptoms.	None.

[A better medicine for *hæmoptysis*, or coughing up of bright blood, than the alum mixture mentioned above, is Recipe 60, which should, if possible, be procured. For vomiting of blood, *hæmatemesis*, Recipe 62.]

Vomiting of blood is also in some cases dependent on disease of the liver or spleen, and it occasionally occurs when the menstrual flow is scanty or suppressed. Such cases require competent medical advice.

SPLEEN DISEASE.—Most diseases of the spleen are generally regarded as due to malaria (*vide* p. 203). When the organ is much affected, there is always enlargement, known as 'ague cake,' sometimes so great that the spleen may be both felt and seen filling up, and rendering protuberant, half the cavity of the bowels; thus forming the condition so often seen in Native children, and known as 'pot-bellied.' This state may come on gradually, without any decided pain or tenderness of the organ, or there may be repeated attacks giving such symptoms. When the spleen is congested, even before enlargement is evident, there will be pain and tenderness on pressure below the margin of the ribs on the *left* side, and the organ may be frequently felt enlarged by placing the thumb in front towards the stomach, and the fingers behind towards the back on the left side of the body. Pain and tenderness of the spleen frequently occur during attacks of intermittent fever, at which times, more especially during the cold stage of fever, the organ becomes inordinately full of blood, its tissue becomes stretched, and it does not readily resume its normal dimensions. In this state it is easily ruptured (*vide* pp. 535, 542).

Disease of the spleen, when established, is always associated with a deficiency of red globules in the blood, and hence the person so affected becomes pallid and sallow, and there is a peculiar pale, tremulous tongue, and the whites of the eyes become pearly or lemon-coloured.

Treatment.—In cases when the spleen has become *suddenly* painful, a few leeches may be required, and one for each year of the patient's age up to twenty-five, will be the proper number. In all cases if there is no diarrhœa, the bowels should be acted upon by the sulphate of soda, quinine and iron (Recipe 3). If there is diarrhœa, the same recipe should be taken without the sulphate of soda. When intermittent fever or ague is present, treatment mentioned under that head must be adopted. When enlargement of the spleen occurs gradually without fever, or without pain and tenderness, tonics, as quinine and iron, are required, and in the absence of other medicines the recipe as above may be taken, with or without the soda salts, as the bowels may require. It should, however, be recollected that in all varieties of spleen disease, a free action on the bowels is generally desirable.

[When obtainable, instead of the medicines mentioned above, for acute cases, two scruples of compound jalap powder with five grains of sulphate of iron may be given every morning, and iron and quinine (Recipe 21) three times a day. The part may be painted externally with iodine paint, until the skin becomes too tender for further application. In more chronic cases the ointment of iodide of mercury (Recipe 94) may be rubbed in daily. Small blisters about two inches square, applied over the part, are sometimes useful when the patient is not weak and debilitated. Mineral waters, as Friedrichshall, and Hunyadi Janos, are also beneficial.]

Spleen enlargement, however, occurring in Europeans, generally eventually requires change of climate to Europe. Otherwise the enlargement will increase, the person will become much debilitated, and sink into that condition known as 'malarious cachexia.' Dropsical swellings of the legs, and probably in the cavity of the belly, will also result, and, diarrhœa or dysentery coming on, the patient will probably die. Removal to a cold climate will in most instances, if not too long deferred, result in rapid recovery. When European children suffer from enlarged spleens their removal from India is imperatively demanded.

STOMACH, DISORDERS OF THE.—The stomach may be disordered by a multitude of causes, the principal of which are, improper food, alcoholic liquors, fevers, and (especially in children) other exhausting diseases. When disorder of the stomach arises from improper food or drink, there may be *headache* (*vide* p. 244); or, if the liver sympathises, there may be a *bilious attack* (*vide* p. 274). But the disorder may not terminate in such ailments. There may be increasing pain and tenderness at the pit of the stomach, with constant hiccup, nausea, and vomiting, even water being rejected. The vomited material consists of saliva, often tinged with bile; the breath is sour and offensive, the tongue furred in the centre, with great thirst, and much feverishness. It is to this condition that the term *gastric fever* has been applied. But a disordered stomach, even when attended by the acute symptoms above detailed, will recover itself, in the course of a few days. If the symptoms continue for a longer period, there is every reason to fear that either *typhoid*, or *remittent fever*, or, in children, *hydrocephalus*, may be present. All these diseases may commence with symptoms of disordered stomach; and in some cases it is, at first, scarcely possible to say whether such symptoms are simply referable to disordered stomach, or are the results of a commencing fever. If the stomach symptoms come on after any of the causes mentioned, and if there is no fever in the neighbourhood, it may be safely concluded that the ailment is simply disordered stomach. If no cause can be adduced, and if typhoid fever is in the locality, the probability is that the person attacked is sickening for such fever.

Treatment.—If the disorder of the stomach assumes the form of headache, or of a bilious attack, the treatment mentioned at pp. 244, 275 should be pursued. If the disorder seems to have arisen without any evident cause, and the bowels are constipated, a laxative, as Recipe 2, should be given. Then, *the main point is to allow the stomach perfect rest;* and only milk and lime-water (Recipe 41), or, if preferred, milk and soda-water, should be given in table-spoonfuls every half hour. Sometimes, however, weak beef-tea, or arrowroot, given in a similar manner, suits the irritable stomach best, and if the stomach rejects a table-spoonful of fluid, the quantity should be reduced, if necessary, to a tea-spoonful. The patient should not drink large quantities of water, which he will crave for, but suck pieces of ice. Chloral (Recipe 75) may be given at night. Fomentations should also be applied over the pit of the stomach.

STOMACH, DISORDER OF THE, IN INFANTS AND CHILDREN.—Is much more common in infants being brought up by hand, than in those who are suckled. It may be caused by very slight uncleanliness of the feeding bottle, especially about the cork (*vide* p. 667); by overfeeding, or by improper food. Very sour breath, vomiting after food, flinching when slight pressure is made on the pit of the stomach, flatulence, and fever, are characteristic. Children thus affected, also usually suffer from diarrhœa, and the stools may be light of colour, and containing many lumps of undigested milk. Disorder of the stomach most usually in children subsides in a few days; or, it may terminate in *infantile diarrhœa* (*vide* p. 143), or in *dysentery* (p. 161), or in *remittent fever* (p. 216), or in *thrush* (p. 391), or in *convulsions* (p. 121), or in *rickets* (p. 319), or in *water on the brain* (p. 77), or in *atrophy* (p. 61), or, if the child has been exposed to the specific contagion, in *typhoid fever* (p. 193).

Treatment.—The treatment is more dietetic than medicinal. The condition is often induced, and frequently kept up, purely by improper feeding. For instance, giving milk or other food whenever the child cries is a fertile cause. Under such feeding, although much milk may be rejected by vomiting, enough remains to decompose in the stomach, and so induces or maintains the disorder. The best treatment is abstinence, so that the stomach may have time to recover itself. The milk should be given sparingly, and lime-water (Recipe 41) should be given several times daily; or, if the infant is being fed it should be mixed with the milk. It should be understood that children with disordered stomach will not suffer from hunger, even if given water only, for a day or two. In severe cases it often happens that milk (although ordinarily the most suitable and natural food for children) is injurious, because it so quickly decomposes and turns sour. When the disorder continues, it is therefore often advisable to stop milk, or farinaceous foods, if being used, altogether, and to give instead, at hourly intervals, tea-spoonfuls of raw meat soup (Recipe 28), or of beef extract (*vide* p. 695); sometimes one, sometimes the other, being best retained.

[In severe cases of disordered stomach in children, when there is no natural colour in the stools, it is advisable to give some medicine to act on the liver. For this purpose, for a child one year old, one grain of calomel, with one sixth of a grain of ipecacuanha may be given every three hours for six doses. If the desired effect is not produced, podophyllin and rectified spirit mixture as recommended at p. 117 for some forms of constipation may be tried. Acid medicated baths (*vide* p. 600) are often useful both to reduce fever, and to induce the liver to act. When nothing can be retained on the stomach, and the child appears sinking from want of food, the limbs should be rubbed with cod-liver oil; small pieces of sponge, soaked in cod-liver oil, should be placed in the arm-pits, and injections of beef-tea may also be used.]

The diseases for which gastric disorder in children are most likely to be confounded are *hydrocephalus*, or *water on the brain*, and *typhoid fever*. The chief characteristics are therefore placed in comparison :—

Gastric Disorder.	*Hydrocephalus.*	*Typhoid Fever.*
Common in young children.	Common in young children.	Not common in young children.
Vomiting continual and severe.	Vomiting continual and severe.	Vomiting occasionally present, but not severe and continued.
Disgust for food after vomiting.	Asks for food after vomiting.	Disgust for food.
Vomiting ceases after the stomach is empty.	Continues after the stomach is empty.	Continues.
Pain and tenderness at the pit of the stomach.	Pain in the head.	Pain and tenderness over the bowels at the sides.
Bowels loose; stools light, with undigested food.	Bowels usually constipated.	Diarrhœa, with yellow-coloured stools.
Bowels variable, often distended by flatus.	Bowels shrunken and contracted.	Bowels drum-like.
No delirium.	Delirium.	Delirium.
No eruption.	No eruption.	Eruption of mulberry-coloured spots about the twelfth day.
No rolling of the head.	Rolling of the head.	Not.
Origin from improper feeding.	Origin often constitutional.	Origin from a specific poison.

STRICTURE.—Stricture, or contraction of any of the natural passages of the body, may occur as the effects of disease or of injury. Thus there may be *stricture of the gullet*, preventing the passage of food into the stomach, and characterised principally by gradually increasing difficulty of swallowing, noticed probably during years, and occasionally aggravated by fits of spasm. There is also pain in the chest and between the shoulders, and if an instrument is passed into the gullet, it meets with an obstruction. *Secondly*, there may be *stricture of the rectum* or lower gut, the symptoms of which are increasing pain, straining, and difficulty in passing the fæces, which are voided in small narrow flattened pieces. There are also cramps and pains in the thighs, frequent desire to make water, and dyspeptic symptoms. Both these forms of stricture require general and surgical treatment, only obtainable under immediate professional superintendence.

But by the term *stricture* in its general sense, is meant that affecting the *urethra*, or channel by which the urine passes from the body, and of this there are two varieties recognised, namely, *permanent stricture* and *spasmodic stricture*.

Permanent Stricture signifies a contraction of the canal of the urethra in one or more places owing *generally* to thickening or deposit, the result of the inflammation occurring during repeated, or neglected, or badly treated attacks of gonorrhœa; but caused *sometimes* from thickening, the result of injury. The symptoms of stricture of the urethra are, first, a little urine dribbling out after micturition and wetting the clothes, increasing difficulty in making water, a small, forked or twisted stream of water, and that stream diminished in bulk. There is often, also, itching at the end of the penis, and a gleety discharge. But as symptoms much resembling those of stricture may occur from other causes, as stone in the bladder (*vide* p. 66), or enlarged prostate gland (*vide* p. 315), examination by passing an instrument (*vide* p. 430) is sometimes the only certain test. The permanent form of stricture, if neglected, is eventually frequently complicated with abscess, terminating in sinuses or fistulæ in the *perinæum*, or fork between the legs. These abscesses generally arise after attacks of spasmodic stricture as described below, when the bladder or urethra behind the stricture gives way, and urine escapes into the surrounding tissue, quickly giving rise to inflammation and abscess.

Treatment.—The treatment consists of both constitutional and mechanical means. Any stomach disorders, or acidity of the urine, must be removed by aperients and antacids, and temperance, rest, and early hours, must be adopted. But the mechanical treatment is of most importance, and consists in the periodical passing of an instrument, only to be performed by an experienced surgeon. When the stricture has been dilated, the passage may be kept open by the patient, who may be instructed how to use a bougie of the proper kind.

Spasmodic Stricture generally occurs to persons who have some slight degree of permanent stricture; or sometimes to those having simply an irritable urethra, probably from gonorrhœa or gleet, without any decided evidence of permanent stricture. The immediate exciting causes of the access of spasm of the part, are indulgence in too much drink, especially of an acid nature, retaining the urine too long, exposure to wet, horse exercise, irritation from piles, or some unnatural condition of urine. The symptoms are now those of *Retention of Urine* (p. 537). The patient has a great desire to pass water, and on straining finds himself unable to do so; the bladder becomes distended and appears as an increasing, central, globular tumour in the lower part of the belly. The suffering is great and the person grows feverish, and, if not relieved, the continued efforts at evacuation may terminate in rupture of the bladder or urethra and in *extravasation*, or escape of the urine into the surrounding tissues. When this serious complication results, the patient during a violent effort of straining feels something give way; his painful sense of distension becomes immediately less, and he thinks himself getting well. He probably now also makes a little water, as the stricture relaxes when the pressure behind is removed, and this further adds to his satisfaction. But in a very short time smarting pain occurs about the anus, and in the fork, scrotum, and penis; for the irritating urine has escaped in all these tissues, and the parts mentioned rapidly become red, much swollen, and inflamed. Blackish spots and blisters, significant of *mortification*, soon appear, the tongue becomes black, the pulse feeble, and muttering delirium and hiccup precede a fatal termination.

When the escape of urine is not so great, as may occur if the patient is relieved at the critical period, an abscess forms in the fork behind the scrotum. This is known by throbbing pain, tenderness, hardness, and a globular swelling, with hot skin and feverishness. Or sometimes an abscess forms without any escape of urine, simply as the result of irritation.

Very frequently a *perinæal* abscess, however it may have formed, results in fistula, through which very often urine finds its way from the bladder.

Treatment.—When spasmodic stricture causes retention of urine, the first thing is to relieve the patient. If the symptoms are not very severe, and if the stoppage of water has succeeded a debauch or exposure to cold, a hot bath, followed by fomentations to the fork and lower part of the bowels, and a full dose, as twelve or fifteen grains, of Dover's powder, will generally afford relief. If the bowels have not been recently opened, a full dose, as one ounce, of castor oil, should be taken one hour after the Dover's powder. If these measures do not succeed in the course of three hours, a full dose, as thirty grains, of chloral may be given, and leeches to the number of thirty should be applied behind the scrotum. If urine does not pass, the catheter should be introduced (*vide* p. 431), which, if there is a stricture, may be a very difficult undertaking, and will require the aid of a surgeon.

When *extravasation* of urine occurs, a free incision three inches long and one deep, should be made in the middle line of the swollen scrotum, and any other parts either of the scrotum or perinæum, which are swollen and prominent, should also be pricked. Then a poultice should be applied, and a catheter should be introduced into the bladder and retained there, to allow of the escape of urine. The diet should consist of nourishing broths and soups, and stimulants, as wine or brandy, should be freely administered. When abscess forms in the perinæum or fork, it should be opened without delay. But the treatment of extravasation of urine, and of abscess from this cause, cannot be conducted satisfactorily except by a surgeon, and they are both conditions urgently requiring skilled aid.

[In addition to the remedies mentioned above for the relief of retention of urine from spasmodic stricture, tincture of iron mixture (Recipe 22) should be procured, one ounce of which should be given every quarter hour. It will also be advisable to give a morphia draught (Recipe 76).]

ST. VITUS' DANCE.—This disease, technically termed *Chorea*, generally affects children, and commences with slight convulsive movements of the face or legs. When fully formed there may be convulsive movements of all the limbs. In walking the leg is suddenly thrust to one side, or pulled backwards; or in conveying the hand to the mouth it is, as it were, snatched towards the forehead or shoulder, or above the head. The causes are often intestinal irritation from neglected constipation, or from worms; or it is sometimes associated in young girls with irregularities of the monthly flow. It has also frequently followed frights occurring to weakly children. It may be excited by injuries to the head or spine, or by immoral practices. In other instances it has seemed to be hereditary.

Treatment.—The probable cause of the malady must be first studied. If from worms, they should be expelled (*vide Worms*, p. 421). If from constipation, this condition must be relieved. If from menstrual irregularity, treatment as mentioned for amenorrhœa or dysmenorrhœa (p. 409) must be pursued. If from debility, tonics are necessary. If from immoral practices, such habits must be abandoned.

SWELLING OF THE LEGS.—Swelling of the legs may occur from a variety of causes. The condition may arise from causes specified under the head *Dropsy* (p. 153); or from the reasons mentioned under the *Diseases of Pregnancy* (p. 310); or from scurvy (p. 329); or at *the change of life* (p. 420); or from enlargement of the spleen (p. 361). Lastly, the legs may swell as a consequence of debility, and especially from debility the result of heat. Swelling of the feet is, indeed, very common in India, especially towards night, after the business of the day; but, unless connected with obvious derangement of the general health, this does not need medical treatment.

SUNSTROKE.—There are several forms of this affection, presenting considerable variety of symptoms, but which practically may be classed under the following heads:—

1. *Heat Fainting*, or *Syncope*. 2. *True Sunstroke*, or *Coup de Soleil*. 3. *Sun Fever*.

The cause of all varieties of sunstroke is high temperature, especially if long continued, either with or without direct exposure to the sun's rays. The liability to sunstroke is increased by fatigue, mental excitement, depression of spirits, living and especially sleeping in crowded barracks, hospitals, or dwellings; by want of ventilation, by want of water, by constipation of the bowels, and by the abuse of alcoholic drinks. Sunstroke is most prevalent in the hottest weather, or on calm sultry days and nights just previous to the rains; also when hot weather commences suddenly after cold, and in those still sultry days when the sun is obscured by a film of clouds or impalpable dust; or when that peculiar electrical state of the atmosphere is more than ordinarily noticeable, in which the hairs of the head stand on end, often emitting sparks when brushed. Under such conditions sunstroke often occurs epidemically.

Premonitory Symptoms of Sunstroke.—Frequently previous to an attack of sunstroke of any description, the person affected by the influences above noted becomes irritable, restless, and complains of headache. He feels dull and listless, and is unable to make much exertion without a great effort. The appetite fails, and a feeling of nausea, and constipation of the bowels are often present. An absence of perspiration may also be noticed, the skin may be unusually hot and dry, there may be slight sensations of giddiness, and there may be more frequent desire than usual to make water. Such premonitory symptoms may prevail for several hours or for several days previous to the fully developed attack, or they may not occur at all; or, occurring, may pass away.

When anything of the kind is noticed in persons exposed to a high range of temperature, immediate measures should be taken to prevent the initiatory symptoms passing into the fully developed form of the disease. Every means possible should be used to secure ventilation and movement of air, shade and coolness should be sought, cold water should be plentifully drunk, and the body should be well sponged with water, or a bath should be taken. A purgative (as Recipes 1 and 2) will generally be desirable, and citrate of magnesia draughts (*vide* p. 14) should be given every two hours.

1. HEAT FAINTING, OR SYNCOPE.—Either after the foregoing premonitory symptoms, or without such deviations from health having been observed, *heat fainting*, or *syncope*, commences with feelings of faintness, sickness, giddiness, confusion of ideas, confusion of vision, loquacity, hysterical fits of laughing or crying, shivering, cold extremities, frequent desire to make water, and sometimes drowsiness.

The face is pale, the surface of the body is cold, and often bathed in perspiration. The respiration is of a sighing or gasping character, the action of the heart and the beat of the pulse are weak, sometimes intermittent, the pupils of the eyes are contracted, and there may be more or less decided insensibility.

2. True Sunstroke, or Coup de Soleil.—True sunstroke may be preceded for a variable time by the premonitory symptoms as above detailed. Or it may commence as heat fainting, or syncope, which condition, after a few minutes, or perhaps a few hours, passes into another state, characterised by *flushing of the face, heat of body and head, bloodshot eyes, strong quick pulse, stertorous snoring or puffing breathing (marking the brain most affected), or noisy, laboured, and incomplete breathing (marking the lungs most affected). In a very short period insensibility ensues, and sometimes convulsions. Or thirdly, *coup de soleil* may occur suddenly, without either premonitory symptoms, or the fainty feelings of heat syncope. In such cases the person falls down as suddenly as if struck with apoplexy, and the symptoms are as above described (*commencing at flushing* of the face*). Sometimes there may be convulsions, but in the majority of these cases, the patient does not move again.

In the above details it may be noticed that the principal difference in the symptoms of the two chief forms of sunstroke are, *first*, in the appearance of the face; *secondly*, in the pulse; *thirdly*, in the respiration or breathing of the patient. In heat fainting the countenance is pale and the surface of the body, particularly the hands and feet, feel cold; in true sunstroke, or *coup de soleil*, the face is flushed, and the surface warm or hot. In the first-mentioned form of the affection the pulse is weak and often intermittent; in the second form it is strong and quick. In heat fainting there is sighing, irregular or gasping respiration; in true sunstroke the breathing is regular, snoring, puffing, or stertorous. Hence, according as the malady appears to expend itself on the head or chest, the terms *Heat Apoplexy*, *Heat Asphyxia*, or *Heat Suffocation*, have been applied.

SUN FEVER.—This, often also called Ardent Fever, is simply a high degree of feverishness, and has already been described under the head of *Fever* (*vide* p. 192).

It should however be known that exposure to the sun will often induce a less degree of feverishness than that to which the term 'Sun or Ardent Fever' has been applied, being a condition resembling the state mentioned as Ephemeral Fever (*vide* p. 192). For this affection, rest and quiet only, are, as a rule, necessary.

Treatment.—In treating sunstroke, the peculiar form in which the disease attacks should be recognised. In the first form, when the patient is faint, sick, giddy, shivering, cold, it will generally be advisable to lay the person on his back in the shade, to rub the limbs, to loosen the clothing, and to give a stimulant in the shape of wine or brandy and water. But the case must be treated with caution, on account of the tendency of the malady to run on to that condition marked by flushed face, heat of skin, blood-shot eyes, and quick, strong pulse. When such symptoms are observed, stimulants should be withheld, cold water should be poured on the head, punkahs should be used to cool the surrounding atmosphere, and if the patient can swallow, a quick purgative, as one ounce of sulphate of soda in three ounces of water should be given. Recipe 105 should also be used cold as an injection; or, if not at hand, an injection of cold water may be given. The extremities should be rubbed, mustard poultices or turpentine stupe should be applied to the nape of the neck, and if insensibility and puffing breathing ensue, the injection should be repeated, and twenty leeches may be applied either at the back of the neck, or at the roots of the hair above the temples. The patient may also be wrapped in a wet sheet.

When the symptoms point to lung affection (known by the irregular, noisy, laboured and incomplete breathing, but neither sighing nor stertorous or puffing), in addition to cold affusion, quick purging, and friction to the extremities, a large mustard poultice should be applied to the chest. If doubt is felt as to which is most affected (the head or the chest), or if, as often occurs, both are affected, mustard poultices or turpentine should be placed both on the back of the neck and on the chest (*vide* Recipe 108).

In all varieties of sunstroke the patient should be encouraged to drink plentifully of cold water, to supply the place of the evaporation of fluid constantly taking place from the skin. This will tend to cool the skin. It must be recollected that the patient is not free from danger until the skin is cool and moist.

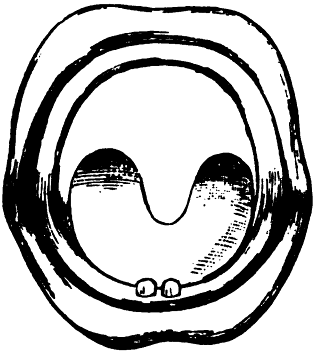
All forms of sunstroke are to be regarded as most dangerous. They are frequently followed by periodical headaches, by fever, by neuralgic affections, by dysentery, and sometimes by paralysis. They sometimes leave permanent cerebral injury, which may terminate in insanity. Moreover, often when recovery seems complete, the person is ever afterwards unable to bear any exposure to the sun, and is thus unfitted for active life in the tropics.

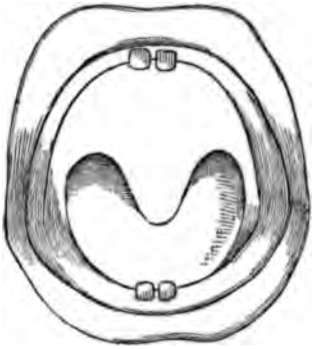
The means of prevention of sunstroke are, avoidance of direct exposure to the sun; wearing loose clothing round the neck and chest; avoiding overcrowding, especially of sleeping-rooms; artificial cooling and ventilation of dwellings; wearing a proper head-dress and turban; protecting the spine from the sun by padding in the coat over that part; wetting the head-dress with water when obliged to go out in the sun; avoidance of spirits, and temperate living (*vide* Chap. V. p. 615, &c.)

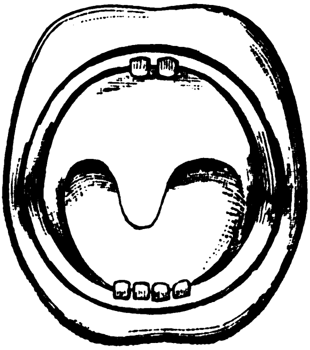
[As noted above, in the great majority of cases of sunstroke, quick purging is most desirable. Therefore, if obtainable, two drops of croton oil mixed in a little sugar should be given instead of the sulphate of soda. If the patient cannot swallow the croton oil and sugar, it should be placed, by means of a feather, on the back of the tongue.]

TEETHING, or DENTITION.—Teething, being simply a natural process of development and growth, ought not in a healthy child, born of healthy parents, and carefully suckled and reared, to be attended with difficulty. It is, however, a period of transition from one mode of being to another, in respect to certain all-important functions, by the performance of which the body is nourished, and this excitement of the system, although from a natural process, renders many children liable to be affected by causes which would not, at a different period, produce any injurious results. Thus, so many children, especially in this country, are improperly fed, or are naturally deficient in strength, or are the children of parents more or less debilitated by a prolonged residence in the tropics, that the process of teething is frequently accompanied by suffering and danger. The intimate connections which exist between the nerves supplying the stomach (*pneumogastric*), the nerves supplying the teeth pulp (*the fifth pair*, or *trifacial*), and the nerves supplying the general system (*the sympathetic*), are so extensive and numerous that functional interference with one set or any part of one series is liable to act upon the others. Hence the frequent association of stomach or bowel complaints, of fever, of skin diseases, and of other derangements, with the cutting of the teeth.

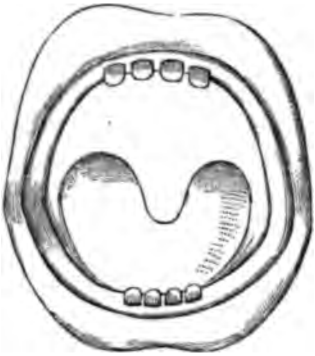
When the teeth appear naturally, and the child is otherwise in good health, they emerge from the gums somewhat in the following order. The two lower central incisors penetrate the gums between the sixth and seventh months; the corresponding upper central incisors in from three weeks or a month afterwards; the two lower lateral incisors about the eight or ninth month (*vide* plates on next page);



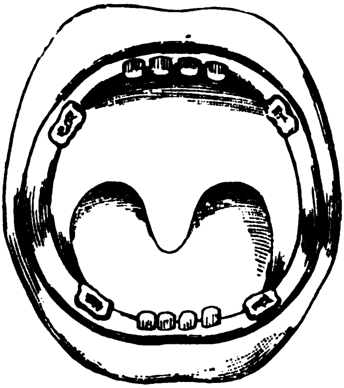




the two upper[1] lateral incisors generally soon or a month afterwards.



The anterior molars of the under jaw make their appearance between the twelfth and fourteenth month, those of the upper jaw following shortly afterwards.



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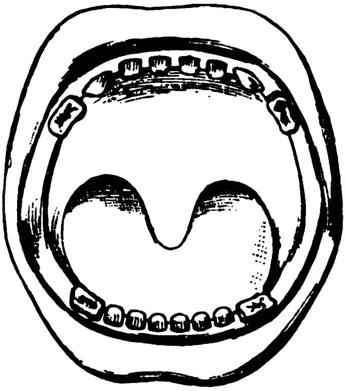
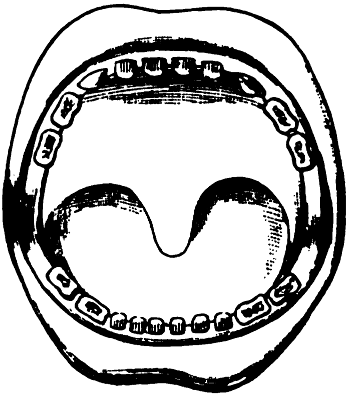
[1] The upper lateral incisors often precede the lower ones.

The canine or eye teeth are cut between the sixteenth and twentieth months.



Last of all, the second molars are cut between the twentieth and thirtieth or thirty-sixth months.



Thus the first dentition, or the cutting of the twenty temporary or 'milk teeth,' as they are called, is completed as a general rule at the age of two years and a half to three years.

Most people will, doubtless, remember feeling much pain when the wisdom teeth appeared, and children, probably, often experience the same kind of annoyance. This, however, is not always the case, for sometimes it is discovered an infant has cut a tooth who had yet shown no signs of discomfort, nor, probably, any indication, excepting an increased flow of saliva, that dentition had commenced. But more frequently the mouth becomes hot, and the gums look tense, tumid, and shining, while the position of each tooth is marked some time before its appearance by an increased prominence of the gum. If the process of teething is going on naturally, and there are no symptoms beyond a little feverishness, dribbling from the mouth, or occasional diarrhœa, no interference, medicinal or otherwise, is necessary or proper. Preventing the dribbling from the child's mouth saturating the clothing and producing cold is all that is required. The most common complaints during teething are restlessness, want of sleep, and feverishness at night. The child's temper is cross, the flesh becomes soft, and there is loss of colour, all improving on the day the tooth comes through. But the special liability of infants to more serious illness at such period should be borne in mind; and care should be taken not to make any alteration in the infant's food while it is actually cutting the teeth, but rather, if change of diet be necessary, to take the opportunity afforded by one of those pauses in the process of dentition to which reference has been made above. Should the child at any time grow suddenly hot and feverish, or wake screaming at night, a simple cooling medicine, as citrate of magnesia (*vide* p. 14), may be given every two hours, while the bowels, if confined, should be moved by castor oil. An ivory or india-rubber *ring*—the best shape, as it cannot be thrust into the eye—may always be given to the child to suck with advantage. The pressure against the gums, particularly of the india-rubber substance, is agreeable to the child, and, moreover, the friction and pressure tend to increase the rapidity with which the gum above the rising tooth is absorbed. The practice, however, of giving sweet things to children to suck during teething must be condemned, as the *barley sugar*, or other material sometimes used for this purpose, being swallowed, frequently turns acid in the child's stomach and disorders the bowels. If a tooth is near the surface, known by the prominent shining, and sometimes white appearance of the gum, and if the piercing of the gum by the tooth seems unduly delayed, and the child is feverish or otherwise suffering, the gum may be lanced according to the instructions given at p. 397. But the gum lancet should seldom be used unless there is evident irritation or prominence of a gum, or when it appears the gum will certainly burst in a day or two. Under such circumstances, lancing the gum will spare the infant much suffering. In a smaller number of cases it may be necessary to lance a red and swollen gum when the tooth is not so near—as when a child has convulsions, or is attacked with other serious ailment. But this is done to scarify and relieve the turgid gums, *not* to divide them down to the tooth. The objection sometimes adduced against thus lancing the gums, namely, that the resulting cicatrix renders the part hard, and the tooth therefore passes through with more difficulty, is not tenable. For the cicatrix of the gum, like *all* newly-formed structures, is most easily absorbed.

It not unfrequently happens that children suffer from many of the symptoms of teething when the gums afford little or no evidence of the approach of the teeth to the surface. The mouth may be hot; there may be restlessness, flushings of the face, heat of hands and surface generally, with loss of appetite, and perhaps vomiting and diarrhœa. But the gums show little sign of *localised* irritation, and the condition is therefore often attributed to some other cause.

This state occurs during the intervals between the appearance of the teeth, or during what is vulgarly called 'the breeding of the teeth' in the gums. It arises from the pressure made far below the surface of the gums by the increasing and growing teeth, which have not yet risen sufficiently to render the skin of the gums tense and prominent. In such cases lancing would be wrong, unless convulsions or other serious ailment should occur. A preparation, consisting of sixty grains of bicarbonate of soda, well mixed with one ounce of honey, should be rubbed on the gums two or three times daily, and cooling medicine, as citrate of magnesia (*vide* p. 14), should be given. Remedies for diarrhœa, or for constipation, or for flatulence (*vide* pp. 143, 116, 228), as such conditions may prevail, should also be prescribed.

It should be recollected that during the process of teething there is a demand in the system for certain mineral matters of which the principal is lime, which plays a considerable part in the construction of the teeth. Therefore, when teething is difficult, or when the maladies mentioned below supervene, a little lime-water may be given (*vide* Recipe 41). A few spoonfuls of this fluid may be mixed daily with the milk or other food of the child Or if the chemical preparation called 'phosphate of lime' is procurable, a couple of grains may by preference be given with each meal, instead of the watery solution of lime.

The principal maladies occurring during or excited by teething are: 1. *Various forms of skin disease.* 2. *Thrush*, or *Aphthæ.* 3. *Flatulence.* 4. *Vomiting.* 5. *Diarrhœa.* 6. *Bronchitis*, or *Pneumonia.* 7. *Convulsions.* 8. *Paralysis.* 9. *Disordered stomach.*

1. Various Forms of Skin Diseases.—Almost any variety of skin disease may occur during dentition. Most frequently skin affections at such times take the form of 'breakings out' about the ears, or of ringworm on the scalp; or of 'rose rash,' or *erythema* (*vide* p. 334), or of *pompholix* or

watery blisters or 'blebs' on the limbs or body (*vide* p. 344); or the glands underneath the chin may swell or even suppurate. It frequently happens that, in spite of any treatment, these skin affections persist during the whole period of teething, then getting well spontaneously.

The skin affections of children appearing during dentition are seldom dangerous, and rarely need much medical treatment. They frequently serve as a relief to the system, and if they are suddenly and imprudently checked, disease of some important internal organ may manifest itself. It is generally better to abstain altogether from any external medicinal applications. The parts affected should be kept perfectly clean by washing frequently with glycerine soap, after which a little cold cream or simple ointment may be applied. Maintaining the bowels freely open by senna, or by castor oil, or by citrate of magnesia, or by Gregory's powder, together with the careful regulation of the food, are the best means of curing these eruptions. They are often increased by acidity of the stomach, and are then much benefited by two or three grains of bicarbonate of soda, or magnesia, given daily. Sulphur, magnesia, and cream of tartar, of each from two to five grains, according to age, given every morning, is a very useful remedy. If there is debility or feverishness, a grain of quinine may be added with advantage.

Rose rash, roseola, or red gum, and erythema, all skin affections occurring during teething, are described under *Skin Diseases*, pp. 333, 334.

2. Thrush, or Ahpthæ (*vide* p. 391).

3. Flatulence (*vide* p. 228).

4. Vomiting.—Vomiting occurring to children during teething is very common, and may be connected with skin maladies, or with diarrhœa, or be a symptom of disordered stomach (*vide* p. 362), or may occur unassociated with other ailments. It may either depend on indigestible food; or on too frequent feeding; or it may altogether arise from that

intimate communication between the different nerves supplying the teeth and stomach, as before noticed (p. 374), and by which the irritation arising in one part is conveyed to, and reacts on, another part of the body. Vomiting, therefore, is to be mitigated or relieved by attention to the food, giving particular care to the cleanliness of the utensils used, if the child is taking other sustenance than human milk; by relieving constipation or diarrhœa by appropriate remedies; and by lancing the gums if they present the appearances described as indicating the use of the instrument (*vide* p. 379).

5. Diarrhœa (*vide* Infantile Diarrhœa, p. 143).

6. Bronchitis and Pneumonia.—These maladies sometimes come on in children during teething, although they are not so frequent in India as in cold climates. During teething bronchitis is often associated with diarrhœa, and the early symptoms, consisting of cough and feverishness, may be regarded as sympathetic irritation of the air-passages, resulting from the process of teething, when in reality they are the first signs of a dangerous malady. Therefore cough, or wheezing of the breathing, occurring during teething, must be looked upon with suspicion, as the possible commencement of a serious ailment; and if the symptoms persist, the remedies proper for bronchitis or inflammation of the lungs must be used (*vide* pp. 89, 283).

7. Convulsions (*vide* p. 121).

8. Paralysis of Infants (*vide* p. 296).

9. Disorders of the Stomach (*vide* p. 362).

TEETH, SECOND or PERMANENT SET.—It will be useful here to note the manner in which the second set of teeth appear. The advance of the permanent or second set of teeth towards the surface of the gum causes the absorption of the roots of the temporary or milk teeth, and thus facilitates their shedding, the crowns falling off and leaving room for the permanent teeth behind them, to come forward and supply their places.

In the replacement of the first by the second set of teeth, the following order is observed. The front teeth (middle incisors) are first shed and renewed usually when the child is about eight years of age; and then, probably a year later, the side teeth (lateral incisors). The anterior double teeth (molars) are replaced about the eleventh year, and a few months afterwards the posterior double teeth (molars) of the first set give place to others. The permanent eye teeth (canine) also appear towards the end of the twelfth year, these being the last of the milk teeth exchanged. Two other double teeth (molars) rise between twelve and a half and fourteen years of age. The third double teeth (molars), or wisdom teeth (*dentes sapientiæ*), seldom appear until three or four years subsequently, and often much later. The number of the second set of teeth when complete is therefore thirty-two.

TEETH, WISDOM, CUTTING OF THE.—This is often attended with pain, perhaps protracted for months. The difficulty generally arises from the teeth appearing so close to the curvature or angle of the lower jaw that the mucous membrane of the mouth, where passing from the cheek to the jaw, is caught by the rising wisdom tooth, and nipped every time the mouth is closed. Ulceration is thus produced, and a troublesome sore may result. Sometimes there is stiffness and spasmodic action of the jaw in consequence. The best treatment is to nip away, with a sharp pair of scissors, any projecting or overhanging fold of membrane, so that the teeth may not press upon any part of the texture of the mouth when the jaws are closed. The ulcer will then soon heal, particularly if touched occasionally with a camel-hair pencil charged with strong alum water, or with vinegar.

TESTICLE, INFLAMMATION OF THE.—This may arise from various causes, as injury, mumps, and gonorrhœa. The whole of the organ may be affected, or the posterior part may be chiefly implicated. The symptoms are heat, swelling, redness, great tenderness, pain between the legs, and aching and dragging sensation in the loins. There is also feverishness, nausea, and sometimes vomiting. If any discharge has been previously taking place from the penis, it ceases when the testicle becomes inflamed. Both testicles may be affected at the same time, but usually the right side is attacked.

Treatment.—Perfect rest in bed is desirable, and the inflamed part should be well raised on a small pad. It should be assiduously fomented with hot poppy water (*vide* p. 591), and if the inflammation is violent, and the pain and tenderness unbearable, leeches should be applied, in the number of one for each year of the person's age up to thirty. Citrate of magnesia draughts (*vide* p. 14) should be given to relieve feverishness. If necessary, the bowels should be well opened by successive doses of Recipe 2, and chloral (Recipe 75) should be given at night to relieve pain and afford sleep. The attack runs its course in about ten days, after which the testicle will require to be supported until all remaining hardness and swelling subside, which may not be for some weeks afterwards.

If a person with swelled testicle is unable, from social or other reasons, to keep at rest in bed or on the couch, as advised above, the great thing is to support the parts well by a suspensory bandage, or with the handkerchief, as described below. In severe cases, however, the person is totally unable to move about, however much he may wish to do so, and in all cases the less he does so the more likely and quickly will a radical cure be brought about.

When swelled testicle occurs to boys as an accompaniment of mumps, the pain and swelling are usually moderate in degree, and beyond raising the organ and fomentations, no special treatment will be required. This form of swelled testicle also subsides rapidly, without leaving any hardness or permanent swelling, as a consequence.

[If a suspensory bandage, as sold by instrument makers, is not obtainable, a good substitute may be formed by the use of a broad bandage and a handkerchief. The bandage should be passed round the waist like a belt, and fastened. Then the handkerchief should be folded into a triangular form. The centre of the base of the triangle is to be passed, under and behind the purse, as far as possible. Then the two lateral ends of the handkerchief are to be drawn up, and passed (on each side) first in front, and then over and behind the waist-belt, each end being then brought in front of that part of the handkerchief passing over the bandage. The two ends are then tied together. The front end of the handkerchief is then brought up, passed under the bandage, carried over it, and attached to the knot formed by the other two ends. In this manner a very perfect bag may be formed.]

TETANUS.—Tetanus consists of violent spasms or convulsive movements of the limbs, and frequently of the whole body. The disease often commences with stiffness of the jaws, which in the course of a few hours or days become firmly closed, constituting 'lock-jaw.' There is also often difficulty of swallowing, leading to violent ejection of fluids through the nose or from the mouth. In some instances the disease does not proceed further, and the patient may recover; but in other cases spasms of the limbs supervene, by which the patient may be bent like a bow, resting on his heels and the back of his head. There is agonising pain in the limbs, and also at the pit of the stomach, shooting through to the back. The skin is hot, and drenched with perspiration. The spasmodic movements recur every few minutes, but during the interval the muscles remain hard, and do not thoroughly relax unless the patient sleeps. The patient may die from suffocation in consequence of the spasms fixing the muscles of the chest and preventing breathing, or he may die from exhaustion. The malady is nearly always fatal.

The causes of tetanus are not well understood. It sometimes follows exposure to cold, and it often follows wounds or injuries; but it would seem some peculiar irritable condition of the constitution must be present when tetanus occurs from such causes.

Tetanus may be mistaken for *hydrophobia* (*vide* p. 256), and *vice versâ*. But in hydrophobia there is generally *fear of water* as a distinctive and prominent symptom; in tetanus there is no such fear. In hydrophobia there is constant 'hawking' and spitting, in tetanus none. In hydrophobia there is complete relaxation of the muscles after any convulsive seizure; in tetanus the limbs remain more or less hard and rigid between the convulsive struggles. Lastly, there is generally the history or mark of a dog bite in the one case, and not in the other; but probably the mark of some other injury.

Tetanus may also be mistaken for poisoning by *strychnine* (*vide* p. 524). The distinction is as follows. In tetanus some exciting cause, as a wound, is often present. In poisoning by strychnine, although the jaws may be firmly closed, the mouth can be opened during the intervals between the spasms, and there is no real 'locked jaw' as in tetanus. Tetanus comes on more gradually than the effects of strychnine, which present in a few minutes after a poisonous quantity has been taken. In tetanus the spasms do not thoroughly relax even between the paroxysms; in poisoning by strychnine the periodical relaxation is complete.

Hysterical convulsions have been sometimes mistaken for tetanus; but a reference to the description of hysteria, and a comparison with the symptoms of tetanus, will at once show the difference.

Treatment.—The treatment of tetanus is very uncertain, medicines appearing to do good in one case proving fruitless in another. Chloroform and chlorodyne, or chloral, to relieve pain and spasm, supporting the strength of the patient with good soups and stimulants (to give which a tooth must often be removed), are the principal requirements. If ice is procurable, it may be pounded, put in a bag or cloth, and applied over the spine.

[If the above remedies do not appear to relieve the pain and spasm, five drops of chloroform with twenty minims of tincture of opium may be given in an ounce of water; this not seeming efficacious, morphia (Recipe 76) may be used; that medicine being repeated every four hours, which appears most soothing.]

THROAT, INFLAMMATION OF THE.—Usually arises from cold, but may occur as a result of exposure to foul air from drains and sewers. It may be mild or severe. When moderate, it constitutes a common sore throat; and may or may not be attended with some degree of hoarseness of the voice, which shows that the parts behind the throat are more or less implicated. Under such circumstances the disease may go on to inflammation of the *larynx* (*vide* p. 272). When sore throat is severe it constitutes *quinsy*. In this case the tonsils are affected. They become much inflamed and swollen, and often either *ulcerate* or '*gather*.' When ulceration takes place there is increasing soreness, swallowing is painful, and the ulcers may be seen, as raw deep sores on the tonsils. When 'gathering' or suppuration occurs, there is increasing swelling, very great difficulty of breathing, and *throbbing* pain, until the abscess breaks or is lanced.

Mild cases of sore throat are sufficiently met by a mustard poultice applied externally, and an occasional aperient (Recipes 1 and 2). Ulcerated sore throat often requires touching with concentrated alum solutions (powdered alum three drachms, water one ounce). When the tonsils suppurate, fomentation should be used outside, the throat should be frequently steamed, and, if possible, the abscess should be lanced by a surgeon.

[Nitrate of silver solution, of the strength of ten grains of the salt to an ounce of distilled water, may be used in preference to the alum solution mentioned above.]

Dangerous forms of inflammation of the throat are mentioned as occurring in *Scarlet Fever* and *Diphtheria*. Sore throat is also a symptom of venereal disease.

THROAT, HOARSENESS OF THE.—This depends on irritation generally arising from cold about the top of the windpipe and back part of the throat. Hoarseness extending to more or less *loss of voice*, is a symptom of *croup* (*vide* p. 127), of mild or serious *inflammation of the larynx* (*vide* p. 272), sometimes of *sore throat* (*vide* p. 387), or of a common cold (*vide Catarrh*, p. 97). Hoarseness is usually more pronounced in the morning, passing off as the day advances. For simple hoarseness unconnected with serious symptoms, flannel round the throat, a mustard poultice, the feet in mustard and water at night, and an expectorant (Recipe 31) are sufficient.

Loss of voice may also arise from ulceration occurring during the progress of syphilitic disease, requiring treatment by anti-venereal remedies.

Hoarseness or loss of voice may also be caused by over-exertion of the organ, by singers or public speakers, or by clergymen, and is so common in the latter class as to be named *Clergyman's Sore Throat.*

This is rarely connected with any inflammatory action. But the throat may be red and congested, and feel sore, and the disorder, if allowed to continue, often becomes very intractable. It most frequently arises from too much straining of the voice, and is more often met with in young clergymen, who have not attained to the necessary experience in public speaking. They strain the voice by the injudicious employment of high notes, or by reading in a monotone before the organ has been inured to exertion by necessary practice. They commence speaking in a church when they should have commenced in a small room, and gradually accustomed the voice to fill a church. In other instances too long or too frequent speaking induces the malady. The only effectual remedy is rest, and then gradually bringing the voice into play; but a few days' rest is totally insufficient, some cases requiring weeks or months. When clergyman's throat is feared it is well for the throat to be 'hardened' from the first. While the beard is allowed to grow as a protection against sudden chills, the throat should be rather exposed to the air than wrapped up in woollen 'comforters.' An alum gargle (Recipe 100) may always be used with advantage. Or port wine and water used as a gargle may be found beneficial.

[When in addition to huskiness or hoarseness, the tonsils are red and swollen, a solution of nitrate of silver (strength eight grams, to one ounce of water) may be applied to the tonsils, with a camel hair brush twice daily. A piece of *borax of soda*, about the size of a pea, allowed to melt in the mouth, ten minutes before speaking, often affords temporary relief. Tonics, as quinine and iron (Recipe 21) may be generally taken with advantage.

Throat, Elongation of the Uvula of the.—Very frequently also there is *elongation of the uvula*, which is the appendage to the soft palate, and which may be seen hanging in the centre of the back of the throat. Its office is to prevent fluids regurgitating by the nostrils during the act of swallowing. When the uvula is affected by cold, or by the irritation arising from public speaking, or sometimes participating in a deranged state of the stomach, it becomes relaxed and *elongated*, so as to extend down to the back of the tongue, or into the throat. This produces irritation, with huskiness of voice, and a peculiar hacking cough, especially when air is inhaled through the mouth in reading or speaking, and often also nausea or even vomiting.

Treatment.—Astringents carefully applied are generally sufficient to make the uvula contract to its natural size. Alum powder, or nitre, may be applied night and morning. If this does not succeed, ten grains of nitrate of silver dissolved in an ounce of water should be applied with a camel's hair brush or feather twice daily. Attention should also be paid to the state of the bowels.

These means failing, one-third of the length of the uvula should be cut off by a pair of sharp scissors, an operation which will be best performed by the surgeon.

Throat, Enlargement of the Tonsils of the.—Enlargement of the tonsils is frequently the result of repeated attacks of acute inflammation. But enlargement of the tonsils often occurs gradually, especially to children and young persons, and more commonly if there is any constitutional scrofulous taint. Residence in marshy, damp localities also favours this affection. The tonsils become enlarged and hardened; there is some difficulty in swallowing, heavy breathing, and often more or less indistinctness of speech, with a peculiar nasal twang. Some degree of deafness may be present, and the person sleeps with the mouth open, snoring loudly. The patient is also liable to acute attacks of sore throat, from slight exposure to cold. This chronic enlargement of the tonsils is certainly more common in cold than in tropical climates; but it nevertheless often presents in children during the cold season of the more northerly provinces of India, where, notwithstanding a hot sun by day, the nights are characterised by a low temperature (*vide* p. 613). It also occurs in the colder climates of the hill stations (*vide* p. 625).

The treatment consists in avoiding cold and chill, and in improving the general health by tonics, of which probably citrate of iron and quinine (Recipe 21) will be the most beneficial. The diet also should be nutritious. Alum gargle (Recipe 100) may be used locally; but usually local applications do little good. Painting with solution of nitrate of silver, or of iodine, as sometimes recommended, has in some instances appeared to irritate, and thus favour the growth of the tonsils. As a rule, enlargement of the tonsils will decrease, as the patient grows stronger and older. Formerly excision, or cutting off the tonsil, was much advocated. This operation is, however, seldom really necessary, and never so unless the parts become white, hard, and so enlarged as to interfere distressingly with swallowing or speech.

Greater caution ought to be exercised in taking a child from India to Europe with enlarged tonsils than if such a malady did not exist. Unless other ailments or circumstances forbid, chronic enlargement of the tonsils would afford a good argument for keeping the child in India for 'another year.' In any case, care and warm clothing on passing out of the tropics are essentially necessary; for an increase or recurrence of the malady is very likely to take place as the colder climate is entered, or even after some length of residence therein.

THRUSH, or APHTHÆ.—This is a disease generally affecting children, especially those brought up by hand. It commences with peevishness, feverishness, and often disordered bowels. It consists of an eruption on the tongue, lips, cheek, and gums, of small *white* vesicles, which discharge a whitish mucus like morsels of curd, for which they are often mistaken, and which are believed to consist of microscopical vegetable parasitic growths. This mucus adheres for some days, and, then falling off, discloses small ulcers. As a general rule, thrush or *aphthæ* is not a dangerous disease, but it sometimes spreads into the throat, inducing difficulty of breathing and of swallowing, and occasionally, in very weakly children, spreading ulceration, *gangrene*, or mortification of some part of the mouth may result. The causes are debility, improper food, sour milk, impure air, and irritation from teething, and the treatment should be directed to the removal of such excitants. The secretion in the mouth should be removed by frequently, but gently, washing the mouth with a piece of lint, firmly fixed on a stick of whalebone, and moistened with hot water. No force should be used to detach the flakes, only those loose being taken away. Afterwards alum, or, if obtainable, borax of soda one drachm, mixed with honey four drachms, should be applied. Thrush is sometimes called 'white-mouth.'

Sometimes an appearance resembling thrush is found at the outlet of the bowels, when the thrush is popularly said to have 'passed through.' The parts should be washed with Recipe 97.

[If this does not succeed, Recipe 55 should be procured and used as a lotion, and the eruption should be brushed twice daily, with a solution of *sulphite* of soda one drachm, water one ounce, which is reputed to destroy parasitic growths.]

TOOTHACHE.—Toothache is generally caused by irritation or inflammation of the nerve in the interior of the tooth. Decay of the tooth until the nerve is exposed is the most frequent cause. The decay always commences on the outside of the tooth and saps inwards. Frequently a slight chip or injury of the enamel initiates the decay. But the decay of food undergoing decomposition between the teeth, or in the natural depressions of the teeth, chemically affects and destroys the enamel; acting much in the same manner as acids. A fungoid growth (*leptothrix buccalis*) found in the mouth, especially attacks carious teeth, and helps the decaying process. The great preventive of decay is friction; that is, the keeping of the surfaces of the teeth swept clean of the food, tartar, and mucus, that lodge between and about them. As a general rule, and especially when there is a thick, sticky, saliva, a saponaceous tooth powder, or soap, should be used. Many of the tooth powders sold are not only useless but actually injurious.

The progress of decay is often very insidious, and the fact of decay being present is frequently only known by the occurrence of pain. It would be well, if the teeth were systematically examined several times a year, with the view of discovering any commencing decay. But a warning of pain, however slight and transient, should never be neglected, and should lead to investigation and to such measures—stopping or otherwise—as may be required. The teeth of women during the period of pregnancy (*vide* p. 310) are apt to decay rapidly, and are peculiarly sensitive—a good reason for having them put in order previous to that event. In young people decay runs a more rapid course in consequence of the structure being softer, the shell thinner, and the pulp larger than in the teeth of older persons—an additional reason why the teeth of young people should be especially attended to.

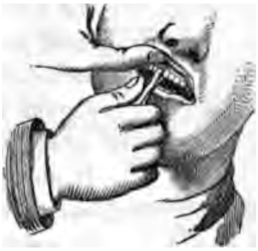
Although decay of a tooth is the most common cause of toothache, it may be present without any distinction of the kind. In some cases the crown or body of the tooth is unaffected, but the fangs or roots are diseased This is usually associated with a succession of gum boils (*vide* p. 242). Lastly, toothache is sometimes *neuralgic*, and then sound teeth are attacked. This condition will probably require purgative medicine, followed by quinine.

A large number of nostrums are sold, as applications to the teeth and gums, as cures for toothache. But there is no such specific cure. When there is a large hollow, and pain is severe, the best application is a mixture of camphor and opium, of each one grain, made into a paste, with which the hollow tooth should be filled; the cavity having been previously dried by means of lint or cotton wool. Or a few drops of any of the following may be applied on a small roll of lint: creosote, chloroform, laudanum, spirits of camphor, oil of peppermint, oil of cajeput, or oil of cloves. Cotton wool placed in the ear, or cotton wool wet with chloroform placed in the ear, often gives relief. So does strong snuff, or a very small quantity of black pepper snuffed up the nostril. A mixture of ten grains of alum, dissolved in half a drachm of chloroform, may be applied to the tooth by means of lint or cotton wool. Equal parts of chloral and camphor form a syrupy liquid, which may be used both to put in the tooth, and to rub the face with. Collodion is also a good application. The cavity in the tooth is first to be carefully dried by means of a little lint, or the collodion will not adhere. One or two drops are then introduced, which, while liquid, exactly fill the cavity. As the ether contained in the collodion evaporates, the pain is assuaged, and a protective layer of collodion is formed in the hollow. A mixture of creosote three parts, and collodion two parts, forms a kind of jelly. Placed in the tooth it dries, and forms a hard mass, which protects the decaying parts from the air, and thus relieves the pain. A hollow tooth may also be often kept easy by filling it with bees' wax. Nitrate of silver scraped to a point and applied to the interior of the tooth will, if well managed, be sure to afford relief. Liniments, as Recipes 89, 90, applied externally, are also often useful. But if a tooth is too far gone to be stopped, and is the site of periodical pain, the only certain relief is extraction.

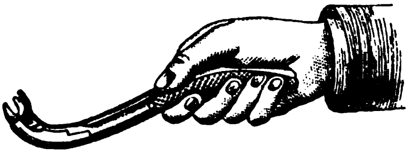
TOOTH DRAWING.—To be able to draw a tooth moderately well, would often prove a useful knowledge. By a few plain directions, supplemented by practising on a skull, sufficient dexterity may be acquired to admit of the amateur often relieving servants or others, suffering from the horrid pain of toothache: a class of sufferers who are indeed often glad to incur some risk, rather than endure the continuance of the pain.

The front and eye teeth may be best pulled out with straight forceps. The gum should be first separated from the neck of the tooth, by passing a gum lancet to the extent of less than a quarter of an inch between the gum and the tooth. Then the blades of the forceps are to be placed, one before and one behind the tooth, and the ends made to clip just where the tooth dips into the gum. The right hand then grasps the handles of the forceps, while the forefinger is at the same time thrust in between the handles, thus preventing too great pressure being made, by which the tooth might be snapped off. If it be an upper tooth, the operator may steady the patient's head, by getting it beneath his left arm, and then pulling down, giving the tooth a twist at the same time, by which it is soon drawn, if the pull be steadily

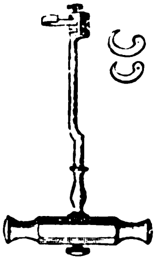
made. If it be a lower tooth, the operator steadies the head in the same way, but with the thumb of his left hand on the sound teeth, presses the jaw down, whilst his right hand pulls up, twisting as he pulls the tooth. The mode of extracting from the upper jaw is here shown.

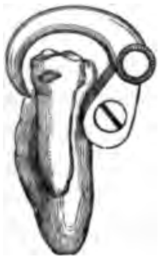


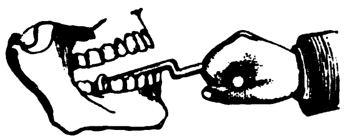
Drawing a back tooth is a more difficult matter, and is effected with forceps of different shapes, the claws being turned downwards, instead of being straight; as shown in the following diagram of the forceps clasping an extracted molar, or back tooth. The forceps must be applied round the neck of the tooth, as described for the front teeth. The forceps should be grasped firmly, the tooth moved from side to side with a twisting motion, and then pulled straight out. In extracting teeth with the forceps, three things should be kept in view: *first*, to prevent the forceps pressing too heavily round the neck of the tooth, by which it is liable to be broken; *secondly*, to loosen the tooth by a twisting or lateral motion; *thirdly*, to pull it straight out. But the pull should not be made with too great violence, or suddenness, otherwise the tooth escaping from the socket suddenly, the forceps may hit against and perhaps break other teeth.



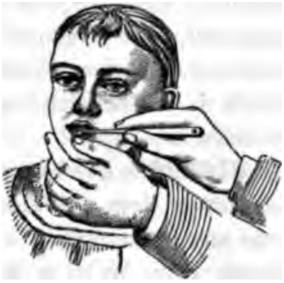
In some cases it may be desirable to draw the back teeth with the 'key;' as when they are much decayed, and cannot bear the pressure of the forceps; or, when the crown of the tooth being lost, there is little hold for the claws of the forceps left. The ‘key’ is shaped something like a boot-hook. The free end of the stem of the key has a deep solid lip, which is called the ‘bolster,’ and on the top of this moves a strong shortly curved iron claw which, when the handle of the instrument is twisted, acts most powerfully and drags the tooth out of its socket. Previous to operating, the bolster should be covered with a little lint, to prevent injury by the necessary pressure on the gum. If an upper back tooth has to be drawn, the operator will see best, and have more power by seating the patient on the floor, throwing his head well back and fixing it between his own knees. If it be a lower tooth, the patient should be placed in a chair, an assistant should hold the lower jaw with both hands, standing behind the patient, while the operator stands in front.







The key should now be introduced into the mouth, with the claw thrown back. The bolster, protected by the lint, should be placed against the gum of the tooth to be pulled out, while the claw is turned across the top of the tooth. When it falls it should catch the tooth just below the body where the gum joins it, and to render this easy the gum should be previously slightly detached from the tooth by the gum lancet. Then the operator should steady the claw with the forefinger of the left hand, and grasping the handle of the instrument, as he would a cork-screw when about to pull out a cork, he should twist it from without inwards. The claw then acts as a lever, the fulcrum of which is the bolster, and the tooth is lifted out of the socket. Care must be taken in fixing the claw that the right tooth is seized, and also that the claw does not slip on to the next, by which accident a serviceable tooth may be drawn, and the troublesome one left behind. But by steadying the claw with the finger of the other hand, the accident can scarcely occur.



LANCING THE GUMS OF CHILDREN.—This is very easily managed, and any intelligent person seeing it done once or twice may do it very effectually. The operation may be performed with a gum lancet (*vide* p. 429), the edge of which must be placed vertically on the top of the inflamed gum, and moved along, pressing firmly at the same time, till the edge of the instrument grates on the tooth.

TONGUE AND MOUTH, ULCERS OF THE.—May arise from various causes as *salivation* (*vide* p. 321), *aptha* (*vide* p. 391), *scurvy* (*vide* p. 327), *venereal*, (*vide* p. 402), or from debility caused by *starvation*. Or they may accompany dyspepsia. When ulcers arise without any evident cause the best application readily obtainable is a concentrated solution of alum (powdered alum three drachms, water one ounce), applied several times daily with a feather or brush ; or this not succeeding, strong vinegar may be used in a similar manner. Accompanying debility or dyspepsia or other ailments should of course receive appropriate treatment.

Dilute sulphuric acid applied with a feather to the ulcer, will be found a better remedy than alum. It causes acute pain for a few moments, but the ulcers are much less sore afterwards, and heal more quickly.]

TUMOURS.—The term 'tumour' is applied to almost any swelling, and does not, as is popularly supposed, signify any particular disease. There are therefore very many kinds of tumours, some of which are mentioned under the maladies of which they form parts. The term *aneurism* is applied to a pulsating tumour resulting from the rupture of an artery. Aneurism most frequently occurs in the artery of the thigh (*femoral*, *vide* p. 440). When firm pressure is made in the course of the artery *above* such a tumour, the pulsation stops, which is a distinctive sign. The only cure is by surgical procedure.

ULCERS.—Ulcers are raw open sores, generally hollowed out lower than the surrounding surface, which may result from any inflammation of the surface of the body, as, for instance, from boils, or from injuries. Ulcers of a peculiar kind are caused by scrofula, venereal disease, and scurvy (*vide* pp. 326, 327, 401). Chronic ulcers of the legs are common in elderly people, and are frequently caused in the first instance by varicose veins (*vide* p. 400). Ulcers require different treatment according to their cause or condition. The most universally suitable application is water dressing (Recipe 85). When in doubt, this will always be the safest application.

URINE, BLOODY.—Bloody urine results from various causes. Blood in the urine turns that fluid a dark-brown colour, and if the blood is in large quantity a dark-brown deposit falls. When bloody urine occurs, the first question is the source from which it results. It may happen as a consequence of congestion of the kidneys, and will then be preceded by a feeling of pain or weight in the loins. It may be a sequence of inflammation of the kidney or *nephritis* (*vide* p. 271), and as such may occur after scarlet fever. It may be caused by irritation of the kidneys from taking turpentine or Spanish fly. It may arise from injuries of the kidneys (*vide* p. 517). It may be caused by the passage of a stone from the kidney to the bladder (*vide Gravel*, p. 239), or from *Stricture* (*vide* p. 365), or from *Stone in the Bladder* (p. 66), or from a diseased state of the mucous membrane of the bladder (*vide Inflammation of the Bladder* (p. 65). It may also result from *Scurvy* (*vide* p. 327), or occurs during bad forms of fevers. The treatment therefore must depend upon the cause.

URINE, DISEASED CONDITIONS OF.—Other diseased conditions of the urine most generally met with are: 1. *Saccharine Urine* (*vide* Diabetes, p. 138); 2. *Albumen in the Urine* (*vide* Bright's Disease, p. 86); *Mucus in the Urine* (*vide* Inflammation of the Bladder, p. 64); 4. *Gravel* (*vide* p. 238); 5. *Bile* (*vide* Jaundice, p. 267); *Spermatorrhœa* (*vide* p. 299).

VARICOCELE.—This term is given to an enlarged condition of the veins within the *scrotum* or purse, which feel like a bag of worms. The swelling is irregularly pyramidal, the base resting on the testicle, and the apex pointing upwards. It is most common on the left side, and it is accompanied by a dull aching pain in the part, by a sensation of weight, and by a dragging pain in the back and loins. If the person lies down, the swelling *gradually* subsides, with relief of the painful feelings. It is always worse if the bowels are constipated, and is indeed in some cases caused by constipation, as the fæcal matter retained in the large gut presses on the veins, thus mechanically preventing the return of blood from the part. After it has existed some time, it is apt to cause neuralgia of and wasting of the testicle. Varicocele may be mistaken for *rupture* (*vide* p. 532) or for *hydrocele* (*vide* p. 264), and the distinguishing features are given at p. 533.

Treatment.—The disease may be palliated by wearing a suspensory bandage (*vide* p. 385), by bathing the scrotum daily with cold water, and by regulating the bowels, so as to avoid constipation. Such measures are generally sufficient, although sometimes a surgical operation is necessitated.

VEINS, VARICOSE.—This term is applied to an enlarged, dilated, and tortuous condition of the veins. Varicose veins of the leg are noticed at p. 307, as a result of pregnancy. *Varicocele* (*vide* p. 399) is also a form of varicose veins. *Hæmorrhoids* or *piles* (*vide* p. 300) is a similar condition of the vessels of the part. The cause of varicose veins is some sluggishness of the, or impediment to the, circulation of the blood through the veins, which (*vide* p. 437) *return* the blood from the extremities, and surface of the body *to* the heart. Hence the veins of the legs, which have the largest columns of blood to support, are most likely to become varicose. Sluggishness or feebleness of the circulation, may depend on debility from insufficient food, or from many other causes. Impediments to the circulation of the blood, particularly of the legs, are various; such as pregnancy, or other tumours pressing on the veins above, or even fæcal accumulation in the large bowels, as occurs during some forms of constipation (*vide* p. 115). Occasionally, varicose veins are found in other parts of the body. The part affected, especially if the leg, is attacked by dull aching pain, and the varicose veins may be seen—looking dark-coloured—and may be felt—like soft prominent cords—ramifying under the skin in different directions, or clustered in raised knots. The leg also swells, particularly in the evening, or after exertion. Often the veins appear at the point of bursting, and, if the disease is neglected, the skin may eventually give way, a copious bleeding may take place, which continues until it is stopped by pressure, or until the person faints, and an ulcer may form on the leg.

Treatment.—The leg or part affected should be frequently sponged with cold water; if the leg, it should be kept raised, and friction with soap liniment should be used for ten minutes three times daily, the leg being rubbed *upwards*, from the ankle towards the knee (and not downwards), so as to assist the venous circulation. Sitting with the leg down, and especially standing, should be avoided as much as possible. Moderate walking exercise may be taken, but only after the precaution of a well-applied bandage (*vide* p. 431), or the use of an elastic stocking. During this period general treatment must not be neglected. When there is debility, generous diet and tonics, of which iron is the best (Recipe 22), should be given. But if, as sometimes happens, the varicose veins appear connected with constipation, Recipe 2; or if with inactive liver, Recipe 12 may be used. In such cases the natural mineral waters (as Friedrichshall or Hunyadi Janos) are often of great value.

If a vein should burst, pressure by the fingers, or by a pad of lint soaked in cold water, should be applied until the bleeding stops. Varicose veins from pregnancy usually disappear after the birth of the child, but varicose veins from other causes, if neglected, may increase to such an extent as to require surgical treatment.

VENEREAL DISEASE, or SYPHILIS.—This disease is the consequence of contagion, and may appear at any time, up to ten days after exposure. It first shows, on some part of the genitals, in the shape of a small red pimple, or crack, which about the fourth day becomes a watery vesicle with an inflamed base. Then a little matter forms, and discharging, leaves an open sore or ulcer, with a hard margin, elevated edges, and depressed centre. In other cases the parts are less hard and elevated, and the sore more resembles an ordinary ulcer from other causes. This softer kind of sore comes on sooner after infection than the hard one; usually appearing within fifty hours after exposure.

Next, about fifteen to thirty days after the commencement of the sore, or after the sore has healed, there may be swelling or tenderness of the glands in the groin, eventually forming a tumour about the size of an egg, or in some cases as large as an orange, called *bubo* (*vide* p. 93). This is extremely painful and tender. If this swelling occurs, it may either subside or proceed to the formation of matter, which then points like an ordinary abscess. The bubo is most likely to subside if it follows the harder description of sore; and most likely to form into an abscess if it occurs after the softer description. On the other hand, the secondary symptoms, referred to below, are most likely to present after a hard sore.

The sore on the privates, and the swelling in the groins, complete the symptoms of *primary syphilis.*

But the person so affected is not free from the disease. Weeks or months, or even years, afterwards *secondary symptoms* may occur, which are extremely difficult to eradicate, and which often injuriously modify the person's constitution for the remainder of life. A person tainted with syphilis may, indeed, enjoy excellent health for a series of years, during which the poison lies dormant; but on the individual falling from any cause into a state of debility, the poison becomes active and secondary symptoms appear. On an average, however, the period of their appearance is in about six weeks, and in the majority of cases the sequence is much as follows. The person grows dispirited, is probably troubled with rheumatic pains, particularly in the shin bones, and complains of loss of appetite and want of sleep. Then either skin diseases, or sore throat, or ulcers of the tongue or mouth, or all these affections, appear. The mildest variety of sore throat is simple redness, or soreness, but very often there are peculiar-looking ulcerations, to which, as they appear undermined and hollow, the term 'excavated' has been applied. The patient has a peculiar guttural way of speaking, and may complain of pain in the ears. Next, or at the same time as the sore throat, appear eruptions of the skin, of various descriptions. A reference to *Diseases of the Skin* will show that the principal forms are rashes, vesicular eruptions, pustules, scaly eruptions, and tubercles. Each and all of these may occur as secondary symptoms of syphilis, presenting the variations of ordinary skin disease, but differing in important distinctive characteristics, viz. they itch but slightly, they are generally circular in shape, they leave brownish stains or discolorations, and during their progress they have a coppery hue, which non-syphilitic skin affections do not present to the same degree. Perhaps the most common venereal skin affection is a pustular eruption, which eventually becomes scaly, very much as *psoriasis*, or 'tetter,' has already been described. Sometimes the scales, falling off, leave foul ulcers, which are long in healing, and from which a permanent mark or scar often results. But these are not the only results of secondary syphilis. It not unfrequently also attacks the internal nostrils, producing a nasty foul discharge, and it may even ultimately destroy the bones of the nose. Or it may attack the bones of the head, or the shin bones, the surfaces of which swell, become very painful, and form what is termed *nodes*. These *nodes* sometimes gather, burst, and leave deep foul ulcers, at the bottom of which is *carious*, or diseased bone. The windpipe may also be implicated, producing huskiness or even loss of voice, which defect may become permanent. Lastly, internal organs, as the brain or liver, may also become diseased, giving rise to various anomalous symptoms, only to be recognised by the experienced practitioner.

But even this is not the end of venereal disease. Women frequently miscarry as a result of syphilitic poison in the system. Children born of diseased parents are often affected from birth. They are, in fact, born diseased. When a child is born syphilitic, it is weakly and shrivelled, with hoarse cry, snuffling respiration, discharge from the nostrils, and copper-coloured blotches on the skin, especially about the privates. It has a prematurely aged look, and often suffers from *pemphigus* (*vide* p. 344) a few days after birth. In other cases such symptoms appear a month or so after birth, and the seat of the eruption is much determined by the uncleanliness of parts. If the child of syphilitic parents escapes such maladies in infancy, it is more liable than other children to suffer from *atrophy* or wasting (*vide* p. 61), and when growing up the individual is much more likely to become consumptive or scrofulous than others not so tainted.

Treatment.—If a sore occurs, and the means mentioned in the small type below are not at hand, the parts should be kept perfectly clean, an alum lotion (Recipe 97) should be applied, and the patient should be kept as quiet as possible, taking some aperient medicine, as Recipes 1 and 2. Then if the sore is not a true syphilitic chancre it will get well, and if it is, the best method under the circumstances will have been pursued. If, however, a sore occurs presenting the characteristics mentioned in the first lines of this article, viz. commencing as a pimple, and passing on to an open sore, with hard margin and elevated edges, the patient should, although he may suffer little pain, seek the advice of a medical man as soon as possible.

[The proper treatment of venereal disease is as follows. If the pimple on the genitals is observed *before* it becomes a sore, or *chancre*, it will be advisable to destroy it by the careful but thorough application of nitrate of silver. Then the part should be treated with water dressing (Recipe 85), and rest and low diet should be enjoined. If, however, the ulcer or *chancre* has formed without this being done, black-wash lotion (Recipe 88) should be applied with lint, and provided the patient is not broken down in health by previous disease, blue pill should be given, in three-grain doses, three times a day, until there is a metallic taste in the mouth, or the gums become slightly sore. If the blue pill acts on the bowels, one quarter of a grain of extract of opium should be combined with each dose. Meanwhile the patient should live regularly, but not too low; the clothing should be warm, and but little exercise should be taken. If, notwithstanding these precautions, swelling and pains in the groin indicate the formation of bubo, the patient should be kept on the couch, and *all* exercise avoided, and the painful part should be treated as advised under *Bubo* (*vide* p. 93).

When *secondary* symptoms occur, the most satisfactory remedy is iodide of potassium in five- or eight-grain doses. But the Protean varieties of secondary syphilis, and the difficulties of treatment involved, demand the advice of an experienced surgeon, scarcely any two patients requiring exactly similar remedies.

A syphilitic infant should be brought up by hand, so that it may not imbibe further poison from its mother, nor infect a hired nurse. Then, half a drachm of mercurial ointment may be spread on a piece of flannel, to be tied round the child's waist every morning, till the symptoms disappear.]

WARTS.—Warts are growths from the skin, often occurring without any assignable cause, particularly on the hands of the young, but more rarely to adults. Frequently if left alone they gradually disappear. When warts grow with a thin stalk or neck, a piece of strong waxed thread may be tied tightly round the narrow part. After a day or two the wart will fall off, and the part should be afterwards daily touched with pure alum.

[Pure acetic or nitric acid carefully applied every day to a wart will destroy it. The acid may be applied with a stick of cedar wood, and care must be taken that it does not touch the healthy skin, or it will act as a caustic and destroy that also. The use of the acid may be continued daily, so long as no pain follows the application. Less powerful applications are tincture of iron, or arsenical solution, used several times daily, in a similar manner.]

WETTING THE BED BY CHILDREN.—This is a troublesome complaint to which children are most liable. It sometimes occurs from mere idleness and indisposition to get out of bed; it often depends on irritability of the bladder; sometimes on the presence of a stone; sometimes from a long foreskin, under which dirt and discharge accumulates. In cases where there is no stone or assignable cause, the child should be made to empty the bladder immediately before going to bed, and he should be provided with a little vessel which, if required, may be taken into the bed. If the practice be persisted in, either idly or unconsciously, the child should be roused in the middle of the night for the purpose of emptying the bladder. He should also be induced to hold the water as long as possible in the day-time, so that the bladder may become accustomed to being full. The child should also be induced to lie on the sides and not on the back, in which latter position any urine in the bladder presses on the most sensitive part of that organ, and induces desire to make water. A small dose of chloral (one quarter of a grain, for each year of the child's age) may be given at night, occasionally. Or, these measures not succeeding, a blister, about the size of a crown piece applied on the very bottom of the spine immediately above the cleft of the buttocks may be tried. It is seldom desirable to punish a child addicted to this habit, although, if old enough, he may be admonished firmly yet kindly.

[The preparation called benzoic acid has been much recommended, and may be obtained and tried in one-grain doses. The inability of holding the urine occurring to children is sometimes connected with irritable condition of the nervous system, causing the child to wake frightened and screaming, as described under *Convulsions* (*vide* p. 123). In such cases, bromide of potassium, in two- or three-grain doses, may be given with advantage.

When, as sometimes happens, similar inability to hold the water occurs to *adults*, and if there is no evident disease explaining the defect, chloral hydrate given at night in fifteen- or twenty-grain doses will prove an effectual remedy. As the malady grows less, the dose of chloral must be diminished until the patient is able to do without it.

WHITES.—This signifies an increased secretion of mucus from the female private parts. The discharge is generally of a white or faintly yellow colour, and may amount to several ounces daily. Sometimes it assumes a glairy appearance, more like white of egg. The appetite is impaired, the bowels generally constipated; there are often palpitations, giddiness, fainting, or neuralgic pains, with flatulence, pain in the back or in the left side, pallor, and hysterical symptoms. The causes are difficult menstruation, chronic inflammation of, or displacement of, the womb, frequent child-bearing, want of exercise, luxurious living, and other causes of general debility. The treatment consists in attention to the general health, to diet, and to the state of the bowels, in regular hours, proper exercise, and change of air. Cold bathing, or at least pouring cold water down the spine, is also advisable; except when the woman is pregnant. To arrest the discharge an alum lotion may be used, composed of thirty grains of alum in eight ounces of water. Infusion of green tea is also a good injection, and may be made by pouring a pint of boiling water on half an ounce of green tea, macerating, straining, and using the injection cold. A female syringe should be employed, and when using the syringe the patient should lie with the hips raised on a pillow, in which position the injection flows well over all the affected parts.

[Recipe 107 may be used if the alum lotion is not beneficial.]

WHITLOW.—There are several kinds of whitlows. The more common and slightest form occurs generally on one side of the root of the nail, beginning with a little inflammation and throbbing. By degrees a whitish semi-transparent bladder is formed, extending more or less round the nail. If not opened the fluid separates the scarf skin from the true skin underneath, till it finds some crack or thin part in the former, through which it bursts, discharging the watery matter, when the finger may get well. But if the matter has been pent up for some days it frequently ulcerates the true skin, and a little red body sprouts up through the opening in the scarf skin, which is excessively tender, and is vulgarly called 'proud flesh.' If this increases the nail may be destroyed.

Treatment.—The blister should be snipped with scissors, and a bread poultice applied, followed in a day or two by simple dressing. If red proud flesh forms, the dead scarf skin should be removed, and alum should be lightly applied to the part, which should then be bound up with simple ointment.

The Second Form of Whitlow occurs in the bulbous ends of the fingers. This is much more severe, and the matter is deeper seated beneath the true skin. No blister forms, but the finger swells and is red, afterwards becoming white as the matter approaches the surface. The pain often extends into the hand and arm, and the nail is usually destroyed.

Treatment.—The finger should be deeply lanced on the inside, in the direction of its length, and a poultice applied. When matter ceases to flow, or in a day or two, the part should be plastered.

The Third Form of Whitlow, also called *thecal abscess* is the most severe. In this case the sheath containing the tendons of the finger inflames, becoming hot, red, and terribly painful; the finger swells, and unless quickly attended to, the inflammation spreads into the hand and arm, and the tendons, or one or more bones of the finger are injured or destroyed.

Treatment.—Leeches, bathing the part in hot water, and hot linseed-meal poulticing should be used. The inflamed part should also be lanced *to the bone early*, within twenty or thirty hours from the beginning of the attack. Afterwards poultices should be applied till the flow of matter ceases, and then plasters. However skilfully treated, some deformity often results from this variety of whitlow. In all cases of whitlow, the hand should be kept in a sling, with the fingers pointing to the opposite shoulder.

WOMB, DISEASES OF THE.—Many causes combine in inducing a great tendency to womb disease in the European female in India—some certainly preventible, others less so, inasmuch as the latter consist of climatic influences. The preventible causes are excitement and fatigue consequent on a journey to the tropics, perhaps before the monthly courses have become properly established. Sea sickness also plays its part, the action of vomiting, equally with the mental emotion resulting from excitement, being sufficient in some constitutions to delay the approach of, or to induce before its period, what should be the regular periodical monthly flow. In addition there may be frequent exposure to chilling winds or damp, neglect of suitable clothing, the fatigue of long journeys or marches, and lastly too early marriage. All these are powerful agents, often acting injuriously on the organ.

One of the first effects of tropical climates on the system of the European, is a greater tendency to affections of the liver and other abdominal organs, in which condition the womb partakes. Then, after a time, the woman probably suffers from attacks of diarrhœa, from dysentery, from piles, from intermittent fever, or she bears children too quickly, or she miscarries. All these are causes tending to irritate and weaken the womb. Superadded to all this is exposure, neglect of suitable clothing, errors in diet leading to intestinal irritation, the imprudent use of the cold bath, chills from the cold from tatties, too frequent or violent equestrian exercise, the lassitude and *ennui* engendered by great heat of climate, and the neglect of a sufficient amount of suitable exercise.

The most common maladies which arise from these various causes affecting the womb are connected with the monthly discharges, which may be either scanty and delayed, or excessive and frequent. The delay of the flow is technically spoken of as *Amenorrhœa*, and it may occur without any actual diseased condition of the womb, simply as a functional disorder. This occurring in young girls is different, as regards cause, from the irregularities of the monthly flow in older persons who have been some time in India. When these latter deviations from health take place they are almost always connected with painful menstruation, called *Dysmenorrhœa;* or with excessive menstruation, called *Menorrhagia.*

AMENORRHŒA, or *Suspended Flow*, or *Failure of the Monthly Courses.*—The monthly affection of women commences about the age of fifteen, and ceases about forty-five. In the Natives of India it generally commences and ceases a couple of years earlier. It may be suspended or fail under the following circumstances:—1st, it is not present as a general rule during pregnancy or suckling; 2ndly, instead of appearing at the usual age, it may be retained or delayed;

3rdly, the menses may be secreted for a time, and their recurrence prevented; 4thly, the non-appearance of the discharge may depend on some mechanical obstruction, or on disease of the mouth of the womb, or of the womb; 5thly, it may be concomitant with 'change of life.'

1st, when the cause of the failure of the monthly course is pregnancy, there will be other symptoms of such condition, and of course nothing is required to be done to reproduce the flow.

2ndly, when, instead of appearing at the usual age, the discharge is delayed, the girl will probably be pale and flabby in appearance, she will be weakly and debilitated, the bosoms will be little developed, and there may also be dropsical swellings of the legs, arms, or face. Periodical pains in the back and loins, irregular recurring headaches, white discharges, palpitations of the heart after slight exertion or on any agitation of mind, capricious appetite leading the patient to eat such articles as chalk or cinders, and irritability of temper are also usually noted. The complexion becomes sallow, dark, or greenish, the condition of the patient soon becoming that described as *anæmia* or 'green sickness' (*vide* p. 51). The face may appear 'grubby' from pustules of *acne* (*vide* p. 347), and *eczema* or *erythema* (*vide* pp. 333, 343) may appear on the legs. Under such circumstances tonics are of the greatest service, especially those preparations which contain iron; and in the absence of other medicines, three or four grains of sulphate of iron (the *hera-kusees* of the bazaars) may be given in an ounce of water three times a day. Moderate exercise in the open air, especially on horseback, but without tiring the patient; a generous but wholesome diet with a little wine or porter; cheerful society without excitement or late hours; the avoidance of close rooms, and cold bathing during the intervals between the monthly periods, will do much good. Change of scene by unfatiguing travel, and sea bathing, are also often beneficial. The bowels should be regulated by aperients as Recipes 1 and 3. Such medicines, together with hot foot or hip baths, to which a little mustard may be added with advantage, should always be taken a day or two before the expected period, at which time cold baths should not be used, and all kinds of excitement should be more carefully avoided. When pain of back or loins indicates that nature is making an effort, and the hot baths are not successful, a mustard poultice may be applied over the lower part of the bowels for two or three nights in succession.

[For the condition above described as amenorrhœa, Recipe 15 should be procured for use previous to the expected period instead of Recipe 1; and Recipe 22 for use during the interval.]

The above indicates the line of treatment to be adopted when amenorrhœa occurs in pale weakly girls, but sometimes the menses are tardy in appearing, the patient being plethoric and robust in constitution, and the bosoms and form well developed. In such cases there will probably be pain of the back and loins, flushing of the face, giddiness and headache, at each period. Before this comes on the patient should take Recipes 1 and 2 for two or three nights and mornings in succession, and a mustard poultice should be applied to the lower part of the bowels. If these measures do not succeed, three or four leeches should be applied to each groin, the bleeding from which should be encouraged by fomenting with a sponge pressed out of hot water. These means should be repeated every four weeks until the menses do appear; and after this occurs, a warm bath should be taken at night at the approach of each period, for some time afterwards. The food of such patients should be very light, principally farinaceous; and alcoholic drinks, as ale, porter, wine, should be avoided. Exercise both on foot and horseback may be freely taken.

Emmenagogue medicines or drugs, as savin, which excite the flow of the menses, are best dispensed with, excepting under the advice of a medical man. Some of these agents may prove very dangerous, and when administered by quacks, or well-meaning but ignorant friends, have often done much injury to the constitution. Suspended flow, as mentioned above, may usually be overcome without the use of such medicines.

3rdly, *the menses may have been secreted for a time and their recurrence prevented.* The discharge at an early period, often does not recur regularly at the end of every four weeks. The constitution seems to require the influence of habit, and for some time slighter causes will induce suppression. Damp feet, sitting on damp ground, standing in a draught, fatigue, passion, excitement of any kind, or fright, will often suddenly check the discharge if present, or otherwise prevent its reappearance. When the discharge is thus suddenly checked or prevented, there is usually headache, lassitude, and probably pains in the lower part of the bowels. If from any causes there is repeated failure of the monthly flow, the constitutional condition becomes the same as, or even worse than, the state occasioned by the non-appearance of the flow at the usual time of life (*vide* p. 410).

The prevention of the menses may also be caused by the debilitating effects of other diseases, such as consumption, Bright's disease, and some forms of hæmorrhage. But such stoppages are less abrupt, and are not followed by the peculiar effects above detailed; while there are the symptoms of the other disease which may be present, which will serve to point out the cause of the retention of the menses.

Treatment.—When the stoppage of the monthly flow occurs as a consequence of other debilitating diseases, no special treatment directed to excite the flow will be desirable. But when the stoppage occurs to otherwise healthy women, the following measures may be adopted. Females of full habit require to be reduced by means that deplete or lower the circulation; and, on the contrary, delicate patients must be invigorated by means which improve the state of the blood and give tone to the system. If sudden suppression or stoppage of the menses occur after they have been established, a hot bath at 106° Fahr. is equally suitable for every constitution; and if taken immediately after exposure to cold or other cause of obstruction, it would often prove successful. In other respects the treatment detailed for delicate or plethoric persons under the second heading may be adopted (*vide* p. 411).

4thly, the non-appearance of the discharge may depend on some mechanical obstruction, or on disease of the mouth of the womb, or of the womb. Obstruction chiefly occurs in young girls; disease to older women. The means directed to be used in the foregoing remarks having failed, after a fair trial, to produce the desired effect, no delicacy of feeling on the part of the patient or her friends should prevent application to a medical man, in order that it may be ascertained if any anatomical obstruction is in the way, or if any disease or result of disease exists. If such is the case, medicine may increase the evil, and delay will increase the difficulties of the case.

5thly, stoppage of the monthly courses from 'change of life' is considered under that heading (p. 420).

DYSMENORRHŒA, or *Painful Menstruation*.—This is even more common in India than the former condition, and is generally symptomatic of some congestion or other abnormal action about the womb. The symptoms are pain in the loins, or in the bowels just above the groins, preceding the monthly period by a few hours, or sometimes days, tenderness over the lower part of the bowels, darting pains in the bowels coming on in paroxysms, sometimes vomiting, diarrhœa, and pain in making water. Nervous and hysterical symptoms are often also present, and the pain sometimes assumes a neuralgic character, returning at intervals. These symptoms may disappear on the flow of the discharge, or they may be continued with the passage of clots of blood, or membranous shreds, until the discharge ceases.

The treatment consists in attention to the general health, in maintaining the bowels moderately open, in avoiding all exposure to damp and chill, or excitement of any kind previous to the expected period. When the pain is present, fomentations should be applied to the lower part of the bowels, and chlorodyne in thirty-minim doses may be given. If nervous or hysterical symptoms are present, a stimulant, as wine, or brandy and water, or in severe cases Recipe 67, will always prove beneficial. A warm bath at the commencement of the attack seldom fails to give relief. After leaving the bath, the patient, being well dried, should go to bed, and keep up the soothing effects of the bath by the application of flannels wrung out of hot water over the lower part of the bowels and privates. When the pain assumes a neuralgic character, returning daily, or twice daily, quinine (Recipe 17) will be required. During the intervals the general health must be attended to, and constipation avoided. Exercise short of fatigue should be taken, and the patient may walk, or drive out in a carriage, but horse exercise is improper. Late hours should be avoided, and a generous but wholesome diet should be adopted.

[Recipe 25 should be obtained for use during the intervals, with or without the sulphate of soda, according as the bowels require aperient medicines or not.]

MENORRHAGIA, or *Excessive Menstruation.*—This is when the flow returns with unusual frequency, or continues longer than ordinary, or is more abundant than natural at the proper period. The flow should naturally occur once in every twenty-eight days: the average time of its continuance is three days, and the amount of fluid lost is about four ounces. There are exceptions to these general rules, but usually when such conditions are interfered with something wrong will have occurred. Menorrhagia, or excessive, too frequent, or too long-continued menstruation, may be the result of two quite opposite states of the system, viz. *plethora* in some instances, and *debility* in others. An immoderate flow arising from plethora is usually preceded by shivering, pains in the head and loins, flushed countenance, and febrile symptoms. An immoderate flow from debility, which is most usually met with in India, is attended by paleness, langour, feeble pulse, frequent fainty feelings, neuralgic pains, depression of spirits, flatulence, and disordered bowels, with dull aching pain in the back, loins, and thighs. Excessive menstruation is very likely to occur to women who have suffered much from over-nursing (*vide* p. 670) or from frequent pregnancy, and sometimes when a doubt of pregnancy exists it may be difficult to distinguish this affection from abortion (*vide Miscarriage*, p. 314).

Treatment.—In all cases of profuse menstruation, rest in the horizontal posture is indispensable, together with perfect quietness; and in severe cases cold local applications, such as cold wet cloths laid over the lower part of the bowels and between the thighs. If the patient is of plethoric habit, indicated by a florid countenance and considerable muscular development, the diet should be low and consisting chiefly of milk and light puddings, the drink being a little weak claret and water, or lime juice and water flavoured with sugar. If the patient suffering from profuse menstruation be of a delicate constitution, indicated by pallid countenance and deficiency of muscular development, the treatment should be somewhat different, and a more liberal diet with a little sherry or port wine may be allowed. Quinine, as Recipe 17, should also be taken. The liver in all such cases is generally inactive, and the bowels are often costive. Constipation must be removed, but purgatives containing aloes are not to be used; sulphate of soda for plethoric persons, and castor oil for more weakly persons, proving more satisfactory. Provided that movement does not cause renewed bleeding, the patient should as soon as possible get into the open air, taking at first only carriage exercise and not walking at all.

[If the immoderate discharge arises from a plethoric state, in addition to low diet and purgatives recommended above, Recipe 4 should be procured and taken. When symptoms of debility are present, tonics, as quinine and iron (Recipe 21), should be given. Iron not only promotes the monthly discharges when deficient, but also, by giving tone to the system, and secondarily to the womb, controls an immoderate flow. In severe cases astringent medicines combined with sedatives (Recipe 61 or 63) should be used; the latter being the more powerful. In still more violent cases it may be necessary to use injections of ice-cold water to stay the bleeding; or, if this does not suffice, astringent injections, as Recipe 98. If hysterical and nervous symptoms are present, bromide of potassium (Recipe 46) may be used. If the loss of blood occurs only at the monthly period, the medicine should be commenced the week before, and when the discharge ceases, the remedy should be discontinued. If the loss of blood occurs at irregular periods, the medicine should be given continually, until the loss is controlled, and after the first five days the dose should be doubled.]

WOMB, INFLAMMATION OF THE.—Inflammation of the womb may occur in connection with disorders of menstruation, or without such prior conditions The malady sometimes commences by a rigor or shivering fit, followed by quick pulse and fever. There is always pain, increased by pressure, over the lower part of the bowels, pain about the loins and thighs, difficulty and frequency in making water which is hot and scalds, and becomes turbid as it grows cool, a sense of weight or 'bearing down,' swelling of the abdomen, more or less fever, and often nausea and vomiting. After the first two or three days, there is a light-coloured discharge which gradually becomes darker, imparting a yellowish red stain to the linen. There is also often diarrhœa, and if the person is subject to piles, they may inflame, and further add to the distress.

The causes of inflammation of the womb are cold, particularly cold taken soon after confinement, blows or falls, menstrual irregularities, sometimes the use of too strong injections, too frequent sexual intercourse, injuries during childbirth, too much exercise on horseback, or too long standing, walking, dancing, or exposure to cold when the menses are present.

The *treatment* consists of leeches over the tender part of the belly, followed by fomentations; or in less severe cases counter-irritation by mustard poultices or blisters. Saline medicines, as citrate of magnesia, should also be used, and the bowels should be opened by castor oil. Unless there is diarrhœa, which sometimes accompanies, oil should always be given, as hardened fæces in the lower bowel may press against the womb, and thus mechanically irritate that organ. The diet should be chiefly fluid, and the drink toast and water, or rice water. Absolute rest in bed is indispensable, as walking, standing, or even sitting in the erect position is injurious, and has often caused a relapse during convalescence. If neglected, inflammation of the womb may terminate in suppuration somewhere in the neighbourhood of the organ, which will be very injurious to the constitution of the patient. This may be suspected if a recurrence of shivering takes place during the existence of pain and tenderness as above described. In such a case it will be well for the patient to take a warm bath at 100° Fahr., this temperature being kept up for half an hour or longer, until faintness supervenes, as the best means of checking the inflammation. After the bath, the patient being well dried, should be covered by an additional blanket, take ten grains of Dover's powder, and two hours afterwards drink freely of toast-water to promote perspiration. The bowels should also be again opened by another dose of oil. Perfect rest, attention to diet, and maintaining the bowels freely moved every day, are the main points to be afterwards attended to; but the opinion of a surgeon should be sought.

WOMB, CHRONIC INFLAMMATION OR CONGESTION OF THE.—This is a minor degree of the acute form described above. It may come on gradually, or it may remain after the acute form has subsided. There is more or less pain or tenderness about the lower part of the bowels, with the discharge called 'whites,' a sense of 'bearing-down' pain in the loins, and painful monthly periods. If long continuing, this condition may lead to a great number of structural alterations about the womb, such as enlargement, displacement, suppuration in the neighbourhood, or ulceration of the mouth. When this condition of chronic congestion occurs, the person should paint the lower part of the bowels with iodine paint daily, or as often as can be borne, or small blisters may be repeatedly applied. The recumbent posture should be maintained for several hours daily; tendency to constipation should be watched for and relieved; piles, if present, should be appropriately treated; cold hip-baths should be taken, or cold water should be poured down the spine daily. At the same time tonics, as iron and quinine, and generous diet will generally be required. In this, as in all affections of the womb, horse exercise should be forbidden.

[In all cases as above, it will be desirable to procure and use the iodide of potassium mixture (Recipe 45).]

WOMB, DISPLACEMENT OR FALLING OF THE.—This consists most usually of a falling down of the womb below its natural position. But the womb (which is pear-shaped) may be bent either *forwards*, or *backwards*, or to *either side*. In such cases the thin neck yields and bends, and the heavier head or body inclines in one or other of the directions mentioned. Displacement of the womb is most frequent in women who have borne large families, or who have got up too soon after confinements, but is not confined to this class. It may occur in the first instance suddenly after exertion, as lifting heavy weights, or from retention of urine (*vide* p. 312), or it may come on gradually from local weakness of the ligaments of the womb, or from weakness of the general system. It happens in every degree, from very slight falling to the protrusion of the womb itself externally; or from a slight inclination from the proper position, to injurious pressure against the adjoining bladder, rectum, and nerves and blood vessels, of the neighbourhood. The symptoms are feelings of weight and bearing-down pains, with a sensation of fulness of the belly, tenderness or aching about the groins and thighs, and 'whites.' There is often also frequent desire to make water, or in some cases inability to do so, caused by pressure on the bladder, when the womb is displaced in the direction of that organ. Constipation may also occur from a similar cause, when the womb presses on the rectum. All these symptoms are more or less severe as the organ is more or less displaced. The digestive organs are generally influenced injuriously by falling of the womb, and this, reacting on the nervous system, produces a depressed and impaired state of general health. Displacement is often associated with the condition described as *dysmenorrhœa* (*vide* p. 413). It may also be complicated by *ulceration* of the mouth of the womb. Displacement, especially when combined with these two latter ailments, is a frequent cause of sterility.

Treatment.—This varies with the degree of displacement. In the less severe cases, medicines should be administered with the view of strengthening the system generally (Recipes 17 or 18). Prolonged rest in the horizontal posture should be enforced, and about a pint of cold water should be injected night and morning, the patient being in the recumbent position at the time. If this treatment is insufficient, injections of other kinds, as mentioned under the head *Whites*, should be tried. If the displacement of the womb is considerable, it may require replacement by the hand. When displacement of the womb has once occurred, it is liable to return, and abdominal belts or other instruments may be necessary to retain the part in position. If *dysmenorrhœa* is present, it should be specially treated (*vide* p. 413). When symptoms as above are persistent, it should be ascertained if there is *ulceration*, which requires treatment by a surgeon.

CHANGE OF LIFE.—It has been already stated (*vide Amenorrhœa*) that the monthly discharge of females commences about the fifteenth year, terminating about the forty-fifth. It is to the period of cessation of this periodical flow that the term *change of life* has been applied. This period is popularly supposed to be a time fraught with danger to the female, and there is doubtless often considerable suffering at such times, and in some women a more than ordinary liability to various ailments. Other women, on the contrary, pass through this period of their life without any sensible derangement of health; the monthly flow gradually becoming more scanty until it ceases altogether. Other females may, when about forty-two or forty-three years of age, begin to suffer from periodical fainting fits, from palpitations of the heart, from despondency, from swelled legs, from swelling of the bowels, from nervous headaches, from flushings, or from night perspirations, from pain in the breasts or in the left side, from eruptions, from bleeding at the nose, or from bleeding piles. Drowsiness by day and sleeplessness at night are common complaints. There may also be hysterical symptoms, or even hysterical fits (*vide* p. 263). Some women at this time suffer from frequent desire to pass water, and from inability to hold it, a little escaping on any exertion, or even on sneezing or coughing. The temper, formerly the reverse, may become irritable, and the disposition may appear temporarily changed. Then the monthly flow may either be scanty, or it may not appear for several months, and then it may return in considerable quantity. There may, in fact, be either of the conditions described as *Amenorrhœa*, as *Dysmenorrhœa*, or *Menorrhagia* present. The course to adopt under such circumstances is to treat the various symptoms as they arise, and as detailed under the headings named (*vide* p. 409). Care should be taken to keep the bowels regular, more especially when women of plethoric habit are the patients, in order to guard against any tendency to 'fits' or other maladies sometimes supervening.

[When there is no special disease, as *inflammation*, *displacement*, or *ulceration* of the womb to account for the symptoms, they may be treated as follows. For headache and drowsiness, eau de cologne saturated with camphor may be rubbed on the forehead and temples; or the head may be sponged with the following Recipe:—solution of ammonia two ounces; salt two ounces; spirits of wine, three drachms; water thirty-two ounces. Sleeplessness and despondency indicate the use of bromide of potassium (Recipe 46). Palpitations and flushings require tonics (Recipe 21). Hysterical symptoms, valerianate of zinc, in two-grain doses.]

WORMS.—There are three common varieties of worms infesting the human intestines, viz. *Tape-worms*, sometimes called *chain-worms*, which are white, flat, jointed and long, sometimes attaining the length of twenty feet; *Round-worms*, resembling a common earth-worm in shape, but white in colour; *Thread-worms*, very much like little bits of cotton, and about a quarter of an inch long.

As a rule *tape*-worms are most common in adults, and *round*-worms in children; *thread* or *maw-worms* may occur in either children or adults; the variety of worms present can only be *positively* ascertained by actual observation, the symptoms arising from either class being often so very similar. The stools should be carefully washed and examined daily, when either joints of the tape-worm, or a round-worm, or maw-worms, will eventually be discovered if the unhealthy state arises from such parasites. It should be a rule not to give any of the medicines mentioned for worms, until their presence has been actually ascertained by such inspection of the stools.

TAPE-WORM.—This worm lives in either the large or small intestines, sometimes stretching throughout their whole length. Its length is therefore sometimes very great, varying from six to twenty feet or more. It is a flat, ribbon-lik worm, of a white colour, one-third to one-half of an inch broad, and composed of segments about an inch long, each segment fitting into the preceding one. Towards the head the worm tapers very much, and the segments are shorter. The head is triangular in shape, about the size of a pin's head, and is further known by four black spots upon it, which are in reality the suckers by which the worm clings to the coats of the bowels. The worm increases in length by fresh segments, developed at the neck, while the fully formed segments at the tail drop off, and pass away with the stools. Each piece thus expelled contains numerous eggs, which it has been proved may be taken into the stomach of animals, and develope into 'hydatids' in their flesh. The hydatids or ova, again eaten by man, may become tape-worms.

The cause, therefore, of tape-worm, or at least one of the causes of tape-worm, is the habit of eating very underdone meat, which from unclean feeding, or from the animals grazing near dirty Indian villages, may contain numerous germs. It has, however, been ascertained that fair cooking destroys the vitality of any such ovum which the meat may contain, although it may escape destruction when the meat is only half cooked.

The symptoms commonly present are uneasiness in the bowels, sometimes amounting to pain of a biting or gnawing character. There is frequently irregularity of the bowels, straining at stool, fœtid breath, furred tongue, and variable appetite. There is also itching at the nose and fundament. The patient grinds his teeth when asleep, and children often awake frightened and screaming. There is frequently headache and giddiness, dry cough, palpitation, and, in women, hysterical symptoms. Pieces of the worm are occasionally passed with the stools, and are the most certain, and only conclusive, proof of the existence of the parasite. In young children, worms are sometimes accompanied by swelling and hardness of the bowels, and they may become the exciting cause of convulsions, of infantile remittent fever, and of St. Vitus' dance.

Treatment.—All kinds of tape-worm are best treated by some specific remedy which experience has sanctioned, as mentioned below, and which must be procured from the chemist. If this cannot be done, the following plan, which is sometimes very successful, may be adopted for either variety of worms. Take of fresh pomegranate root bark, sliced, two ounces; water two pints. Boil down to one pint, and strain. Two fluid ounces should be taken fasting, and a similar dose should be repeated every half-hour, until six draughts have been taken. Vomiting or nausea may occur after the first dose, but this should not prevent repetition. Then, if the bowels are not freely acted upon, a dose of castor oil should be used. The worm will probably pass away with the motions thus produced.

[For tape-worm in adults, the principal and most certain remedies are spirits of turpentine, kousso, and oil of male fern. The dose of turpentine is half an ounce for an adult, with a tablespoonful of castor oil; of kousso half an ounce, steeped in warm water, should be taken; of oil of male fern half a drachm in a table-spoonful of castor oil. Either of these should be taken on an empty stomach, early in the morning, and should be followed three or four hours afterwards by a table-spoonful of castor oil. This treatment should be repeated twice or thrice a week, until the head of the worm is passed, which may be known by its triangular shape. Unless the head of the worm is passed, the worm again grows, and the old symptoms return. For tape-worm in children, the best treatment is to give a dose of castor oil the first thing in the morning, and to allow nothing but liquid food during the day. In the evening another dose of oil should be administered. The effect of this treatment, is to uncover and expose the worms to the action of the drug employed for their expulsion, which may be santonin given in two-grain doses three times during the next day. Santonin is almost tasteless, and without odour, and therefore well adapted for children. While taking the santonin only liquid food should be allowed. Lozenges containing various quantities of santonin can be procured from the chemists, and may be taken instead of the santonin as recommended above.

It should be mentioned that santonin should be kept in a bottle protected from the light by being pasted over with brown paper, as exposure to light deteriorates the medicine. It should also be known that very peculiar effects have sometimes followed taking santonin. The urine may acquire a reddish tinge, giving rise to suspicion of the presence of blood in that fluid. Or, secondly, vision may become affected, every object appearing for a few hours yellow or green. These effects pass off without leaving permanent ill result.

The reason of success or failure of these remedies depends much on the manner of taking them: if they reach the worm they will kill it; if not, of course they fail. If constipation prevails, the bowels should be first cleared by purgatives, as Recipes 1 and 2, and then the worm medicines should be taken fasting. It is advised that if one remedy fails, the others should be taken in the order noted.]

ROUND-WORMS.—These worms may exist in any part of the intestines, and even in the stomach. In shape they much resemble the common earth-worm, and are of a pale pink or white colour, and semi-transparent. There is a circular depression behind the head, and the latter presents three small elevations, between which lies the mouth. There may be one worm or several. The symptoms they produce are very similar to those of tape-worm. There will be tumid belly, griping or biting pains, irritation of the nose, irregular appetite and action of the bowels, nausea, disturbed sleep and vague feelings of distress. The most certain proof of the existence of round-worms is the sight of one passed with the stools.

Treatment.—In the absence of the remedies mentioned below, the treatment by decoction of pomegranate root bark, as detailed for tape-worm, may be pursued.

[But if obtainable give for an adult five grains of santonin powder at bed-time, the same quantity early next morning, and a table-spoonful of castor oil one hour afterwards. This failing, turpentine may be used, as for tape-worm, or purgative pills, composed of six grains of calomel and five of compound extract of colocynth. The dose of santonin for a child of two years old is two grains, of spirits of turpentine ten or twelve drops, of castor oil a small tea-spoonful. The santonin may be given as directed for tape-worm.

If medicines repeated two or three times as above do not succeed, a dose of castor oil should be given the first thing in the morning for two days, and nothing but liquid food allowed during the days. In the evening another dose of oil should be administered. The effect of this treatment is to starve the worms, while uncovering them, and exposing them to the action of the drug afterwards given for their expulsion, which may be santonin or turpentine, as above mentioned.]

THREAD-WORMS.—Thread-worms, also called *maw-worms*, are about one third of an inch long, slightly bent, white and semi-transparent. They almost invariably infest the lower part of the bowels near the fundament, where they create much itching and irritation; they are not only passed with the fæces, but crawl out during the night on the clothes, or into the bed, in large numbers; they also excite mucous or bloody stools, with more or less disturbance of the general health. In females they may crawl into the private parts, creating irritation and discharge (*vide* p. 298). They may also crawl under the foreskin of males, with a similar result (*vide* p. 235). They may also originate protrusion of the bowel (*vide* p. 70). They are most common in weakly and dirty children, who may pass hundreds, or even thousands of worms.

Treatment.—Thread-worms are best expelled by injecting the lower gut daily with twenty grains of quinine dissolved in eight ounces of lukewarm water, or with a table-spoonful of common salt in eight ounces of water; castor oil may also be given, which will expel numbers. Children should be given a dose of castor oil in the evening, and an enema containing six or eight grains of quinine, or a tea-spoonful of salt, the next day after the action of the oil has ceased. (For the method of administering enemas to children, and the quantity to be injected, *vide* p. 118).

As a general rule it is not advisable to give specific remedies, as santonin or turpentine, for thread-worms, which inhabit the lower part of the intestines, and which, therefore, are not so much exposed to the action of remedies given by the mouth as other kinds of worms, having their habitation in the upper portion of the bowels.

[If the injections mentioned above are not quite successful, an enema of infusion of quassia, to be obtained from the chemist, may be used. This not destroying the worms, an enema composed of two drachms of tincture of the sesquichloride of iron in six ounces of water, may be employed. If these measures fail, turpentine given by the mouth should be tried.]

The best means of prevention of all kinds of worms is avoiding eating underdone animal food, especially pork, from which tape-worms originate; and avoiding eating imperfectly-washed vegetables, from which other varieties originate. All the stools of those suffering from worms should be disinfected (*vide* p. 607) and buried, to prevent the spread of the disease by the ova being taken into the bodies of animals used as food. Persons with worms should also always occupy separate beds, or the malady may perhaps be immediately communicated.

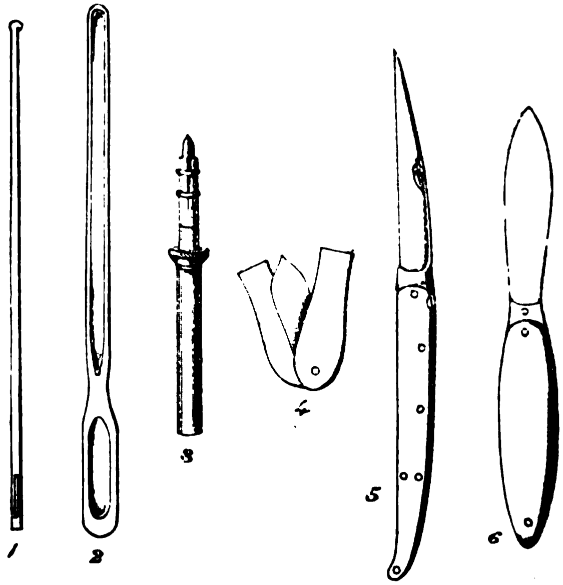
WORMS IN THE NOSE.—The affection generally described as worms in the nose, or *Peenash*, is in reality maggots in the nose. It is a malady almost entirely confined to the lower class of dirty Natives. A fly enters the nostrils and deposits larvæ or eggs within, which eventually become maggots. If any disease causing discharge from the nostrils exists, the flies are attracted, and are most likely to effect entrance. Anyone may daily notice flies clustering about the eyes and nostrils of dirty Natives, particularly children, the latter taking little trouble to rid themselves of the nuisance. At such times, or during sleep or weakness from disease, the flies enter the passage, and maggots in the nose is the result. Sometimes one or two maggots are passed daily, at others several dozens may be passed or extracted. In feeble persons they sometimes consume not only the interior of the nostrils, but even eat their way through the skin of the nose and into the mouth. A good application is lime-water (Recipe 41), injected by means of a syringe. When visible, the maggots should be extracted with a pair of forceps.

[But better injections are 'black wash' and carbolic acid lotion (one part of acid to fifty parts of water), which may be obtained and used alternately several times daily.]

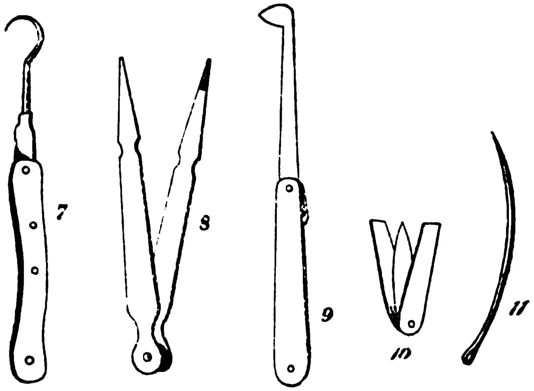
CHAPTER III.

ACCIDENTS AND INJURIES.

INSTRUMENTS REQUIRED.—The instruments and appliances required in ordinary surgical practice are:—



1. The Probe.
2. The Director.
3. The Caustic Case, or Holder.
4. The Abscess Lancet.
5. The Curved Knife, or Bistoury.
6. The Blunt Knife.



7. The Tenaculum.
8. The Forceps.
9. The Gum Lancet.
10. The Vaccinating, or Bleeding Lancet.
11. The Curved Needle.
12. Scissors.

These instruments are contained in a small leathern case, in which also a little lint, ligature silk, and plaster may be carried; the whole passing conveniently into a small pocket.

1. **The Probe** is a piece of silver wire, sufficiently flexible to admit of bending without breaking, and used for the purpose of probing wounds, to ascertain their depth, or if foreign bodies are present or not.

2. **The Director** is a thicker piece of silver wire, deeply grooved on one side, and used to guide the surgeon's knife when opening sinuses or *fistulæ.* The director is first passed where it is wished to cut, and the knife is then thrust in the groove of the director.

3. **The Caustic Case, or Holder,** is a silver tube for holding caustic.

4. **The Abscess Lancet** is a large lancet, with broad-shouldered blade, used for opening abscesses.

5. **The Curved Knife, or Bistoury,** is a thin knife,

approaching the semicircular shape, used with the director for opening deep sinuses or *fistulæ*.

6. **The Blunt Knife, or Spatula**, is chiefly used for spreading ointments or plasters.

7. **The Tenaculum** is a curved, sharp-pointed piece of steel wire, set in a handle, and used for seizing bleeding vessels.

8. **The Forceps** are pincers, with or without a spring attached, used for taking off dressings, seizing foreign bodies, &c.

9. **The Gum Lancet** is of peculiar shape, having a small cutting surface projecting from the end, used for lancing the gums.

10. **The Bleeding, or Vaccinating Lancet**, is used as its name implies; also for opening small abscesses. But the instrument employed either for bleeding or vaccinating should not be applied to any other purpose.

11. **The Curved Needle** is a bent, flat-shaped needle, used for applying stitches to wounds.

12. **The Scissors** should be sharp and pointed.

In addition to the ordinary instruments described above as contained in the pocket-case, the following articles will be required in the medicine-chest for use in surgical cases:—

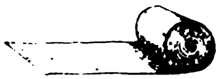
1. Catheters, Flexible.
2. Bandages.
3. Plasters.
4. Lint.
5. Sponge.
6. Tourniquet.
7. Ligature Silk.

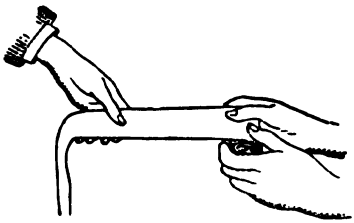
1. **Catheters, Flexible.**—Catheters are instruments for drawing off the urine, and three of different sizes of the flexible—not metallic—kind should be carried in the medicine-chest. The use of silver or metallic catheters, or of flexible catheters *with the wire inserted*, requires special surgical skill, and should not be attempted. The sizes of the catheters recommended for the travelling-chest, are those

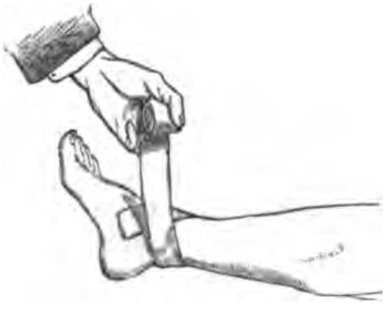
known as Nos. 2, 4, and 8. But as flexible catheters are liable to get stiff and break from age and heat, their condition should always be carefully examined before being used. Perhaps the best kind of catheter is that of French manufacture called the *catheter à boule.* It sometimes happens after accidents, as, for instance, fractured thigh, that the person cannot make water and may require the catheter passed. And although this is an operation demanding surgical skill, it will be better for it to be attempted without such special skill, than for the patient to be left without endeavours towards relief, and exposed to the risk of the urinary passages bursting, with often fatal consequences. By attention to the following directions, and with a flexible catheter, injury can scarcely be inflicted. The wire should be taken out of the tube of the catheter, and the latter should be warmed in tepid water, then dried and oiled. Next, let the head of the penis be grasped with the fingers and thumb of the left hand, and the organ extended upwards and forwards. Next, insert the point of the warmed and oiled catheter, *without the wire*, into the orifice of the urinary passage; then press steadily on, and the instrument, in the absence of permanent stricture, will pass into the bladder, and urine will probably flow. The passage is between eight and nine inches long, and if, when the instrument has been passed so far, urine should not flow, the catheter should be withdrawn for about an inch. If urine is still absent, the probability is that the eye of the instrument is stopped up and requires cleansing.

2. BANDAGES OR ROLLERS are made of strips of linen, calico, or flannel, varying in breadth from one to three, five, or more inches, and in length from one to six, eight, or ten yards. A bandage for the arm should be about two inches wide by eight yards long; a leg bandage two and a half inches wide by ten yards long; and a bandage for the body five inches wide by twelve yards long. As far as possible a bandage ought to be made of one continuous piece without

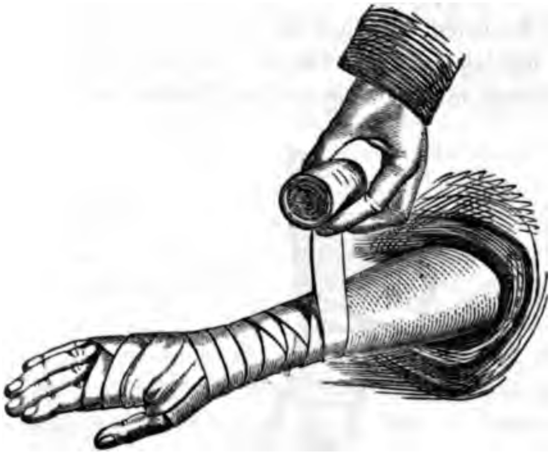
any joinings, and the selvedges should always be torn off. The surfaces and edges should be as smooth and even as they can be made, and there should be nothing which can press unequally on the skin, or irritate it in any way. Bandages should be kept ready tightly and longitudinally rolled up; hence their name 'rollers.' This may be done perfectly well by hand, another person holding the end of the strip of cloth; or it may be fastened to the leg of a table, or to any fixed point. Unless this is done, there is a difficulty in rolling the cloth smoothly. Besides the roller there are compound bandages, as the T-shaped bandage, described under *Protrusion of the Bowel* (*vide* p. 70), the figure of ∞ shaped bandage, described under *Fractured Clavicle* (*vide* p. 496); and in another form under *Bubo* (*vide* p. 93); the four-tailed bandage, described under *Fracture of the Jaw* (*vide* p. 495), and various other forms. The principal uses of bandages are to keep on dressings, to protect diseased or wounded parts from injury, and to place restraint on motion of injured parts, also to afford support to muscles and vessels. In applying a bandage the first thing necessary is to obtain a point on which the required traction may be made. Therefore, a turn round the *arm* or *ankle* should be taken before the bandage is applied symmetrically to the *hand* or *foot*. Then the roll should be held in the manner





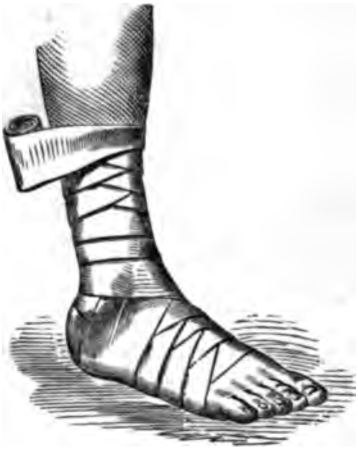


represented below, and it should be passed from one hand to the other as it encircles the limb. A bandage should always be first applied to the extremity of the limb, where it should be tightest, gradually becoming more slack as it ascends, and each fold should overlap about one-third of the previous one. No part must be 'skipped' or left uncovered by the bandage, or swelling of such part will very probably occur, and the roller will become loosened and easily detached. (*Vide* figures above and the one following.)



Where the limb increases in size the bandage must be turned on itself, as represented in the sketches. When a bandage is changed, the part over which it has been applied should be sponged with soap and water, both for the sake of cleanliness, and also to prevent irritation from the bandage, which is sometimes very troublesome. When a bandage has to be applied to the head, the hair ought to be combed, so that it may lie flat, and not make unequal pressure on the scalp.

When a bandage is used to give support, or to make pressure, great care should be taken that it is not too tight in any part of its course. Cases are on record, even in Europe, in which mortification of the limb has been caused by too tight a bandage; and injurious results of similar character are frequent in the practice of native 'hukeems,' or 'jarrahs,' who do not understand the physiology of the circulation of the blood. It is particularly necessary to bear this caution in mind, when applying a bandage to a limb that has been recently fractured. In such cases, the parts are liable to swell, and a bandage which at the time of its application was sufficiently easy, may soon become so tight as to cause a dangerous constriction, and this is especially liable to happen if the limb is allowed to hang down. In cases of bad fracture, or any severe injury, the bandage should be applied loosely in the first instance, particularly in the neighbourhood of the injury, and as the swelling decreases the bandage may be tightened. As the nails are always left uncovered in the application of bandages, it is a good and easy test of the state of the circulation to make pressure upon them, and to observe at what rate the return of blood takes place. If the circulation is free, the white mark which is made by pressing



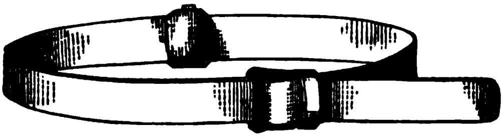
upon the nail ought to disappear at once, when the pressure is removed. But if it lingers and fades away slowly, the injured limb is too tightly bound, and bandages and splints should be loosened, or even removed, without delay.

3. **Plasters** are made by spreading the material on calico, or sometimes on leather. The stick of plaster should be rubbed with a heated plaster iron, made for the purpose, or with a hot knife, when it will melt and fall on the cloth. Or it may be melted in a small saucepan and poured on the calico. It must then be evenly spread with the knife while warm. Plasters are spread on leather, when it is required to afford more support to the part affected, than would be given by calico ; as, for instance, to fractured limbs after the splints are dispensed with. Adhesive plaster is the variety generally used for wounds. Plaster may be carried ready spread, but should be rolled up with oiled paper to prevent it sticking together.

4. **Lint** is required for many purposes; for cleansing wounds, for making small pads, and for spreading ointment on, when a thicker substance than linen is desirable as a covering for wounds.

5. **Sponge** is useful for the purpose of conveying a stream of water (from a saturated sponge) to a wounded or diseased part. But sponge should not be used for the purpose of cleansing wounds or ulcers, as it is liable to become dirty and contaminated by the discharge, from which washing will scarcely free its porous substance. Lint, tow, or linen rag, which should be afterwards destroyed, should be generally used for cleaning away discharges.

6. **Tourniquet.**—This is a strip of strong cloth about an



inch and a half wide, furnished with a buckle and pad, as here shown. It is used to stop bleeding or *hæmorrhage* by being buckled round the limb *above* the bleeding part, the pad being placed *over* the main artery. Or a tourniquet may be extemporised as figured at p. 445.

7. LIGATURE SILK.—This is used for sewing up wounds, and tying bleeding blood vessels. Both hemp ligature and silver wire are also used. In the absence of ligature silk, strong well-waxed thread may be substituted.

THE IMMEDIATE AND GENERAL TREATMENT OF ACCIDENTS AND INJURIES.—The immediate and general treatment of local injuries may be conducted according to the following rules. Separate and succeeding paragraphs will deal more clearly with the special treatment of particular injuries:—

1. The history of the accident, and the place of injury, should be ascertained by a few clear questions addressed to the patient himself if he is sensible and able to speak, or otherwise to the bystanders.

2. If the patient is insensible, place him on the ground or floor, lying rather on one side, and with the head raised to the level of the body by a pillow or other soft substance. This will tend to render the breathing more easy than it would be if the patient lay on the back. Then remove the necktie and collar, and split open or unbutton any clothing pressing upon the neck, chest, or abdomen.

3. The face and chest should be sprinkled with cold water and then wiped dry, and some cold water may be drunk if the power of swallowing remains. Stimulants, as wine or brandy, should not be hastily given, without evidence of their being needed.

4. As a rule, immediate bleeding is not advisable after any accident.

5. Examine the limbs one by one. If there is bleeding, note where it comes from, and follow the directions given

under *Bleeding or Hæmorrhage* (*vide* p. 441). The prominent parts of the limbs may be examined by touch with very little movement of the whole body, and any change of outline or form will probably be recognised by the eye.

6. If there be distinct local injury, it should be treated, if possible, at once, in the manner described under the different headings.

7. If it is necessary to move a person after any injury, especially of the head, the patient should be carried while lying down. He should not on any account be allowed to mount a horse, to sit upright in a vehicle, or even to walk.

8. Allow no useless talking to, or in the hearing of, the patient, and banish from his presence all except those necessary for his comfort and attendance.

9. In all cases of serious injury surgical aid should be procured as soon as practicable. When sending for a surgeon the message should be as clear as possible, and if practicable a written one. The directions in this book are not intended to supersede resorting to surgical skill whenever obtainable. But they may form a convenient code of rules to be acted on, when professional aid cannot be obtained.

COURSE OF THE BLOOD-VESSELS.—Before proceeding to indicate the measures to be taken to stop bleeding from wounds, the courses of the principal blood-vessels are briefly sketched.

The circulation of the blood throughout the body is carried on by the heart, as the central receiving and propelling organ, and by blood-vessels connected with it. Omitting all reference to the circulation through the lungs, arranged for the purpose of oxygenating and renewing that blood which has already supplied the general tissues, it will be well to speak of blood-vessels in the two divisions of *arteries* and *veins*, the *former* carrying bright red arterial blood *to* the different parts of the body *from* the heart, and having a distinct pulse at each beat of the heart; the *latter* carrying dull red or dark blood *from* the various parts of the frame *back* to the heart, and not possessing any distinct pulsation.

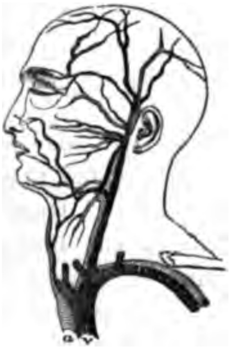
The main arteries pursue a tolerably direct course to the various limbs, and are placed, as a rule, not very near to the surface of the body; the position they occupy is the sheltered one on the inside of each limb.

The veins run in two sets—*superficial*, which are abundant in number, communicate freely with each other, and run a tortuous and twisted course—*deep*, which for the most part are situated side by side with the large arteries, and are more direct.

A knowledge of the course of the principal blood-vessels may be obtained by seeking out their course on the living subject by the pulsation they afford; and an outline of the course of the main vessels will not be difficult to remember, and will be a necessary guide to the ready arrest of bleeding.

In the following drawings (Figs. 1, 2, 3, 4, and 5), the dark vessels represent veins, and the light vessels arteries. The letter *a* in the drawings signifies artery, the *v* signifies veins.

Fig. 1.



There is on each side of the neck a large artery (*carotid*, Fig. 1) which carries blood from the chest to the neck and head. It runs in a line from the inner end of the collar-bone to the angle of the lower jaw, and the pulsation is throughout fairly evident to the finger. The deep jugular vein lies very nearly parallel to the artery; the superficial jugular vein is near the surface, and can be seen under the skin.

The large artery (*subclavian*, Fig. 2) which supplies the upper extremity with blood, passes out of the chest directly over the uppermost or first rib, and then curves downwards. In the armpit the artery (here termed *axillary*) may be felt beating by pressing against the arm-bone near the top of the hollow of the armpit. From this point it runs onwards to the elbows, keeping on the inside of the arm, and to the inner side of the prominent muscle (*biceps*) of the arm (where it is termed *brachial*). It is accompanied by parallel veins.

Fig. 2.

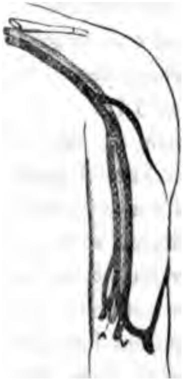
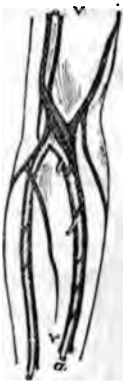
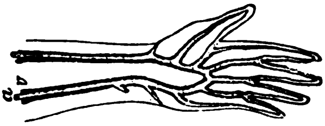


Fig. 3.



Just below the bend of the arm the artery (Fig. 3) divides into two, one (now called *radial*) taking the line of the outer bone of the forearm, the other (*ulnar*) lying almost parallel with the inner bone. In the upper part of their course pulsation is not well felt, as they are covered with muscles. At the wrist joint both vessels may be felt beating.

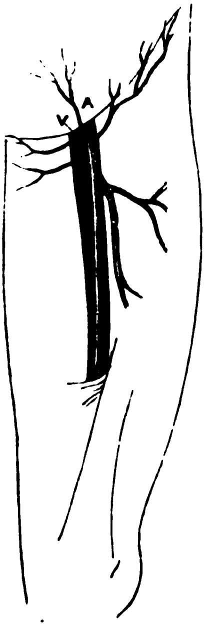
Fig. 4.



Other branches pass onwards (Fig. 4), forming arches in the ends of the fingers and in the palm of the hand.

The large artery of the lower extremity (*femoral*, Fig. 5) passes out from the groin, lying about the middle of the crease of the groin, and almost at right angles to it. From this point it runs onwards inclining to the inside, and turning round a little below the middle of the thigh-bone into the ham. In the upper three inches of its course the artery lies very superficial, and may be felt pulsating. It then becomes deeper seated, but may still be compressed against the thigh-bone. The artery is accompanied by a large vein which lies at first to the inner side, but afterwards behind. Several smaller and one large branch are given off as the artery passes through the thigh. (*Vide* Fig. 5.)

Fig. 5.



As in the arm at the elbow, the main artery at the knee divides into two (called the *anterior* and *posterior tibial*). Both are deeply seated and covered with muscles, and their pulsation, except near the ankle joint, is not easily detected.

The foot, like the hand, is supplied with small branches from the two arteries.

BLEEDING or HÆMORRHAGE, VARIETIES OF.—Bleeding from arteries is ordinarily recognised by vividly scarlet blood rushing out in jets, or jerks. Bleeding from veins is known by the black appearance of the blood, and by its flowing in a continuous stream, and not in jets. When, however, an artery is wounded deep down in the substance of a limb, the jet, or jerk, may be absent, and from retention in the deep wound, the blood, although arterial, may become darker than it would otherwise be. Bleeding from a large artery is dangerous, and will not stop without surgical treatment: but bleeding, except from a wounded artery of considerable size, is seldom dangerous to life. It generally stops on the application of pressure to the part (as described below), or when the person becomes faint. Similarly, bleeding from veins is not often dangerous, and will generally stop without surgical treatment. The reasons why arteries continue bleeding and veins do not, are found in the difference of structure, and in the manner of circulation of the blood. Arteries are elastic tubes, remaining open when cut, by their own elasticity, and carrying blood away from the heart to the surface of the body. Veins are not elastic, have a tendency to close when cut, and convey blood from the surface of the body.

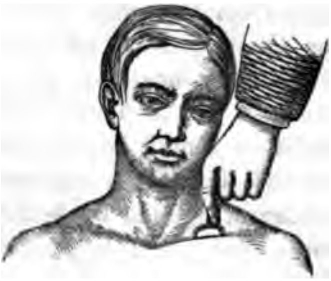
Bleeding, Means of Stopping.—Wherever an artery can be felt beating, *pressure* (especially if against a bone) made with either the fingers, or by other means, will stop bleeding taking place from any wound *below* the part pressed in the limbs; or, when pressure is made on the carotid artery in the neck (*vide* p. 438), *above* the part pressed in the head. When, therefore, bleeding occurs, *if blood is flowing fast, the first thing to do* is to apply a tourniquet (*vide* p. 435), or to use the handkerchief and stick (*vide* p. 445), or to let an assistant compress the main artery supplying the part as shown at pp. 444, 445. Then all clothing, bandages, or dressings should be removed, and all clots of blood should be washed away, with *cold* water, so that it may be seen exactly where the bleeding comes from. When the wound is quite exposed, the tourniquet or other means used for applying pressure should be slightly relaxed. The sides of the wound should be turned up, and any bleeding vessel seen should be *pressed* upon, *twisted*, or *tied*, in the manner described below.

Bleeding from a wound, when not violent, may in general be stopped by sponging the part with cold water; or, if more copious, by *pressure* with the finger, or with a bit of cork, or a hard linen pad; especially if the wounded part is over a bone, as, for instance, on the skull, or on parts of the face, where pressure can be made against the bone. At the same time, the bleeding part should be raised as high as possible, above the level of the heart. But if this does not succeed, each edge of the wound must be lifted up, carefully examined, and the mouth of any bleeding artery should be seized obliquely with the forceps, so that the whole is in the grasp of the instrument, and then *twisted* round, but not so completely as to cause the end of the artery to be broken off. If of large size, or if not stopped as above, even if of small calibre, it will require tying. If the larger artery of the arm or leg is injured, an operation involving a dangerous dissection is necessitated, which can only be undertaken by a skilled surgeon. When the artery is of smaller size, and can be seen by turning up the flaps of the wound, the point of a tenaculum (A) should then be applied as nearly as possible to it, and the spouting mouth (B) drawn up sufficiently to pass a strong thread or silk round it below the tenaculum. One end of the silk should then be passed through the other, and both ends drawn steadily till the blood ceases to flow from the vessel, the mouth of which is seen gaping, open and white. The knot should then be completed. Any other spouting vessel must be hooked up and tied in the same way. After which, if the bleeding cease, the wound may be brought together by plaster, the ends of the ligature remaining *outside*. The ligature will come away with the discharge in five or six days' time, or at an earlier period if on a small vessel. The method of seizing and tying a small artery is here shown. Instead of the tenaculum, a pair of forceps may be used to take up the mouth of the artery.

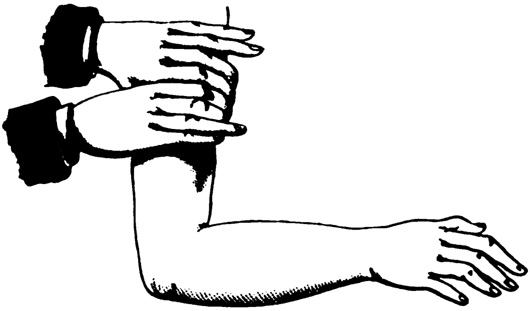
When wounds happen in the limbs, involving injuries of larger arteries, they are followed by much and continued bleeding, which cannot be controlled by pressure on or near the wound; neither can the dissection in search of the wounded vessel be undertaken without surgical knowledge. But the bleeding may be temporarily stopped with little difficulty by an unprofessional person, and so afford time for the arrival of surgical aid.

When bleeding occurs from any part of the head or neck, it will be from some branch of the carotid artery. To arrest this, pressure should be employed in the neck over the course of this artery (*vide* p. 438), in a direction rather inwards and backwards, so as to press the vessel against the side projections of the bones of the neck. This pressure is best accomplished with the fingers.

If the bleeding is from a wound in the arm near the armpit, a bystander should press his thumb firmly into the neck behind the middle of the collar-bone, which will stop the flow of blood through the great artery of the arm as it is first coming out of the chest. As, however, the pressure thus made soon tires the thumb, the handle of a large key, or other object of similar shape, wrapped in three or four folds of linen, may be pressed behind the middle of the collar-bone, and held without fatigue for an indefinite time till surgical assistance can be obtained, or if the bleeding comes from a small artery, until the blood ceases to flow, which may be ascertained by slightly and gradually diminishing the pressure.

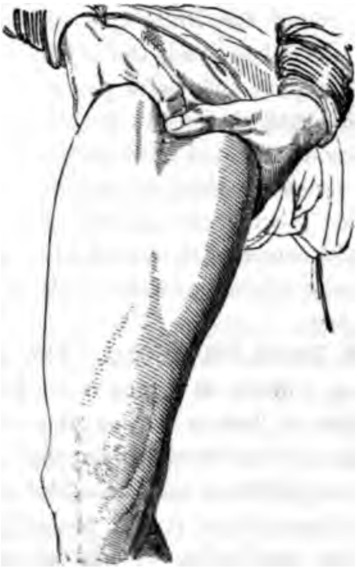


If the bleeding is from a wound in the forearm or below the elbow, the brachial artery should be controlled by compression with the fingers on the inner side of the arm in the position of the artery, as shown below; or by the application of the tourniquet round the limb, or by the handkerchief and stick as figured at p. 445 round the thigh.

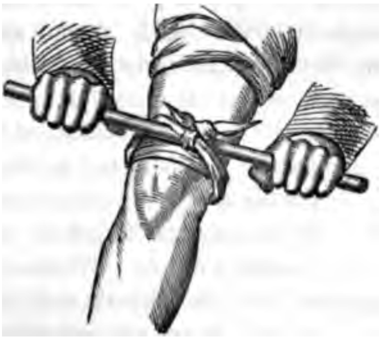


If the bleeding is from the palm of the hand, a graduated pad (made by placing several increasingly larger pads of lint over several smaller) should be placed over the part, and another on the back of the hand. Then two pieces of wood or two paper-knives should be laid transversely across the hand, and their ends tied firmly together. The forearm should then be bandaged, and the whole allowed to remain for twenty-four hours, after which the part should be dressed as an ordinary wound. If pieces of wood, such as paper-knives, are not at hand, the bleeding may be stopped by binding the fingers over a ball of wood, or tightly rolled cloth, placed in the palm, then bending the elbow, and binding the hand to the opposite shoulder.

If there is very severe bleeding from a wound in the leg or thigh, especially if high up in the latter, the great artery which supplies the limb may be pressed so as to prevent the flow, by applying the thumbs with some force immediately below the crease of the groin. This pressure is made with less difficulty than when necessary behind the collar-bone,



but the door-key or other convenient instrument may be used.



When the bleeding is below the middle of the thigh, or middle of the upper arm, and a tourniquet (as figured at

p. 435) is not at hand, a good substitute may be used, composed of a stout pocket-handkerchief and a piece of tough stick, which is to be applied as follows:—Pass the handkerchief once or twice round the limb, some distance, if possible, above the wound. Then push the stick between the handkerchief and the skin, and twist the stick so that it screws the handkerchief until the blood ceases to flow. The twisting should only be continued till the bleeding stops, as the application of more pressure than is necessary to effect this may bruise the limb. A wine cork, placed underneath the handkerchief, over the course of the vessel, will lead to more direct, and therefore more efficient pressure, without so much tightening of the bandage.

BLEEDING FROM THE NOSE.—This may result from direct injury, as a blow; or it may occur from a plethoric or too full condition of system; or, on the other hand, from a thin, poor state of the blood, as happens in scurvy, or in debility, the result of fever, and malarious poisoning. If the bleeding arises from a blow, it will probably stop after a few minutes, and the application of cold water to the face and back. If it continue, a pinch of powdered alum dissolved in a couple of table-spoonfuls of cold water may be thrown up the nostrils with a syringe; or powdered alum may be snuffed up, if a syringe is not at hand. In all cases of obstinate bleeding from the nose, the body should be kept in the upright posture, and the hands should be raised and held by other persons above the head. A bladder of ice or a cold wet cloth may be applied to the forehead, a piece of cold metal, as a door-key, to the back, and pressure should be made over the facial artery, by placing the finger in the angle formed by the side of the nose and cheek. The nostrils should also be pressed together with the thumb and fingers for half an hour. If these measures do not succeed, plugging the nostrils will be required. The anterior part of the nose is easily plugged by inserting a roll of lint into each nostril, but the posterior nostrils can only be plugged by a surgeon acquainted with the anatomy of the parts, and the position of the openings from the posterior nostrils into the back of the mouth or throat.

If bleeding from the nose depends on too full a condition of system, and recurring, perhaps, periodically, low diet, purgatives (Recipes 1 and 2), especially if costiveness is present, and astringent medicines (Recipe 58) are the proper remedies. Moderate bleeding from the nose may be regarded as salutary, when the person is red-faced, plethoric, and subject to headache or giddiness. It is then an effort of nature to relieve herself, and, unless violent, should not be suddenly restrained. If the bleeding appears to depend on too low a condition of the system, preparations of quinine (Recipe 18) are necessary, and the diet must be liberal. Bleeding from the nose frequently occurs to children, and in the majority of cases a thin, depraved condition of blood is the cause, and the complaint must be treated accordingly.

[When the bleeding is connected with a plethoric condition of system, sulphuric acid (Recipe 59) is a better remedy than the alum mixture (Recipe 58) mentioned above. When the bleeding depends on a feeble state, the iron mixture (Recipe 22) is preferable to Recipe 18; and in bad cases these medicines should be procured and used.]

BLEEDING FROM LEECH-BITES.—Leech-bites sometimes give much trouble from continued bleeding. If the person is moderately strong, and the loss of blood is only from one or two wounds, it may generally be allowed to go on, and it will stop in a few hours. But if in delicate people or children, the loss of blood must be stopped at once; more especially if the patient is to be left during the night. This is usually effected by the application of cold water, or by pressure with the finger, through which bleeding cannot take place, continued, if necessary, for an hour. If this does not succeed, a pinch of powdered alum should be pressed into the bites (*vide Leeches, how to apply them*, p. 601).

[Other means of stopping bleeding from leech-bites, which may be employed if necessary, are pledgets of lint dipped in spirits of wine, which may be pressed into the holes; or the latter may be touched with a finely pointed stick of caustic. Occasionally, it has been found necessary to pass a needle through the skin under the bite, and to tie a ligature below the needle in the form of a figure of ∞ knot.]

BLEEDING FROM THE SOCKET OF A TOOTH.—This variety of bleeding is sometimes very troublesome or profuse after the extraction, or accidental loss of a tooth. It may be readily stopped by applying a plug of lint to the part, shutting the teeth close, and running a bandage round the chin and head to prevent the mouth being opened for several hours, during which time the pressure thus exerted stops the bleeding. Or the extracted tooth may be returned to its socket to act as a plug, the chin being bandaged as above.

BLEEDING, INTERNAL.—This occurs from injury or disease of internal blood-vessels. The bleeding may take place into the lungs, when the blood is *coughed up*; into the stomach, when the blood is *vomited up*; into the bowels, when it is *passed by stool*; into the bladder, when it *escapes with the urine*; or into other cavities of the body, from which there is no outlet, as, for instance, within the skull. Internal bleeding, excepting when into the cavity of the skull, is accompanied by great depression and faintness, by cold perspirations, by feeble intermittent pulse; the condition described as *collapse* (*vide* p. 454) being, in fact, present. When bleeding takes place within the head, laboured or stertorous breathing and insensibility, as described under *Apoplexy*, are the chief results. Perfect rest, acid drinks, as lemon juice and water, keeping the body cool, astringent mixture (Recipe 58), and very low diet are the principal means. But each variety of internal bleeding requires skilled treatment, and further remarks would be misplaced in a work of this scope.

BLISTERS.—This term signifies the formation of watery fluid between the upper and middle layers of the skin. They generally result from continued friction, as, for instance, of an ill-fitting boot, on the toes or heel. Or they may be produced by irritating substances applied to the skin, or arise from burns or scalds. The proper method of treating a blister, however produced, is, if very small, to let it alone, when the contained fluid may be absorbed, and the upper layer of the skin will eventually peel off, leaving a healed surface below. If the blister is large, it should be pricked at the most dependent position, and the water should be allowed to drain out, or a piece of worsted thread may be passed through the blister and tied in a loop, which will prevent the aperture closing up before the water has all drained away. The loose skin above should be preserved as long as possible, as it forms the best covering for the tender surface below. It should be protected by simple ointment (Recipe 86) spread on lint, and the part should be carefully guarded from any friction or injury. To prevent blisters on pedestrian excursions, thin woollen hose and a well-made boot with broad sole, so cut that the upper leather does not unduly compress the foot, are desirable, and the socks should be well soaped previous to long walks. If walking must be performed while blisters are present, it will be necessary to take all pressure away from the part, by cutting a hole in the leather of the shoe over the blister.

Ulcers of the Toes and Heels sometimes result from neglected blisters, or from the person being in a bad state of health. These are sometimes troublesome to heal, requiring perfect rest of the part, great cleanliness, dressing with simple ointment (Recipe 86), and attention to the general health.

[Often such ulcers require a stimulating dressing, and when simple dressing, as above, does not suit, the ointment (Recipe 93) should be procured.]

BRUISES.—By bruises are understood injuries in which the skin is not broken. These may be of a very slight or a very severe description. In the first variety the surface of the skin only is injured, but the little blood-vessels therein contained being ruptured, blood becomes effused in the tissues, and discoloration occurs. This is at first bluish black, then it passes through shades of violet, green, and yellow, until, by the end of ten days or a fortnight, it disappears. The familiar instance of a 'black eye' will illustrate this description of bruise. If the injury is more violent, a similar rupture of blood-vessels, and escape of blood, takes place in the muscular and other structures beneath the skin. Or, as sometimes happens, the skin itself may escape injury, and the deeper parts alone suffer. In this case discoloration does not become apparent until twenty-four hours, or longer, after the injury. More or less bruise, both superficial and deep-seated, always attends injuries, such as sprains, broken bones, and dislocations. For slight bruises, such as occur to children falling down, the old-fashioned remedy of brown paper steeped in brandy is not a bad application, or tincture of arnica may be painted over the injured surface. For more severe bruises, the best treatment is to keep the bruised part well raised, if practicable, lying on a pillow, and fomented continually with hot water and flannels. If the bruise is of a serious nature, blisters will now probably form on the surface of the skin. These must be snipped with a pair of sharp scissors at the most dependent part, and the contained water allowed to drain out. But the raised skin or cuticle should not be taken away. After the first two days hot fomentations may be *gradually* discontinued, and a cold lotion, composed of one ounce of vinegar in four ounces of water, may be employed. In the less severe cases cold applications may be used from the first. At a still later period, rubbing the part with brandy and salad oil in equal parts, or, if obtainable, with soap liniment, may be adopted. But at first frictions and liniments do more harm than good. One part of spirits of camphor and three of water, used instead of the lotion, is said to favour the disappearance of discoloration; but in reality, time and the natural action of the absorbents are the principal agents.

Sometimes bruised parts are so badly injured as to inflame, or a large blood-vessel may be ruptured, and much blood escape into the tissues. Under these conditions abscess may form, the skin may burst, and sloughing or mortification may occur. In such cases poultices of bread or linseed meal must be applied, until the mortifying parts separate, and the wound becomes clean. Surgical interference, in the form of incisions to promote exit of matter, is also not unfrequently necessary.

Bruises or contusions of the head are frequently followed by considerable effusion of blood beneath the skin, a condition which is called a *blood-tumour*. This is frequently seen on the heads of newly-born children (*vide* p. 678), being caused by the pressure during a prolonged or difficult labour. A blood-tumour, occurring to an adult after a blow or injury, may sometimes give rise to a suspicion of a fracture with depression of the bone, as the blood-tumour has generally a hardened base, with a softness or depression towards the centre. There will, however, be an absence of the symptoms of fracture (*vide* p. 491), and firm pressure with the finger on the hardened part will discover the uninterrupted surface of the harder bone beneath. In ordinary cases of contusion or bruise of the scalp, followed by blood-tumour, time, and the application of a cold lotion (Recipe 83) will suffice to effect a cure.

BURNS AND SCALDS.—The effect of burns and scalds on the skin is, in the first instance, the same. They may be slight, producing mere redness of the surface; or when more severe, blisters; or when still more severe, partial or total destruction of the parts injured. Three different degrees of burning or scalding have been accepted as including all varieties. 1st. When the contact with fire or water has been but a very short time, and the injury is that of redness, or inflammation of the skin, with coincident severe pain. 2nd. When blisters have formed from a greater amount of heat being applied. 3rd. When there is destruction of the skin or underlying structures, or where they are changed into a black or yellow mass, and all vitality destroyed.

A slight burn or scald may be treated by the application of lint, or cloth, or plantain leaf soaked in salad oil; or the part may be covered with a layer of cotton wool secured by a bandage.

In domestic life, severe burns perhaps most frequently happen from the clothing catching fire. When this occurs the sufferer should not on any account run about, as every draught of air will fan the flame. He should lie down on the floor, and roll, or be rolled in a rug, table cover, carpet, or any convenient article sufficiently voluminous and thick to stifle the flames. Or such not being available, the person should roll on the floor, until the flames are mechanically put out. If water is at hand, it should, of course, be dashed on the person. Then the patient should be laid on a bed, and if there is much shock to the system, which always follows severe burns, and is indicated by complaint of cold, shivering, pallor, and faintness, some hot coffee, or wine and water, or brandy and water, whichever may be first available, should be given at once, and bottles of hot water should be applied to the feet. Next the clothing should be removed by cutting it away from the injured parts. If the skin should adhere to any part of the dress, the piece of the latter should be left, rather than the skin be torn in taking it away. The stockings, especially, must be removed with great care, lest the cuticle or upper layer of the skin separate with them, which would materially increase the sufferings of the patient. It will facilitate the removal of the stockings if they are first soaked with salad oil. In the case of burns or scalds of the hands or feet, it is a good plan to immerse them, with the gloves or stockings on, in cold water. After a few minutes they should be removed, and partially dried with a towel. Spirits of wine, turpentine, kerosene oil, or brandy and water in equal parts, should then be dropped on the glove or stocking to moisten it thoroughly. After five or six hours of such treatment, the coverings may be cut carefully away, and the blisters may be snipped. Then, in the absence of the carron oil mentioned below, the parts may be covered with lint moistened with either of the above applications. But severe burns should, as soon as possible, be dressed with carron oil (Recipe 87) which should be warmed, and then spread thickly on lint or linen rag. All cold applications to extensive burns or scalds should be avoided as most injurious. The first dressings should not be removed for two days, after which the parts should be dressed daily. At each removal of the applications the parts must be well cleansed by permitting a stream of warm water to flow over them from a sponge, but the injured parts should not be wiped or touched with the sponge. All blisters should be snipped, but no wrinkled skin or raised cuticle should be removed. In dressing extensive burns, care should be taken to avoid exposing more than a small part at one time, or the cold will be injurious. The cotton-wool dressing, or the plan of dusting the burns with fine flour, frequently employed in Europe, is not recommended for severe burns or scalds in India. As they are used on the principle of excluding air, such applications must be suffered to remain *in situ* several days, becoming hard, dry, and irritating; and, moreover, liable to harbour maggots. When the surface becomes red, healthy, and clean-looking, nothing will be more beneficial than simple water dressing, *id est*, lint soaked in tepid water, laid on the part, and the whole covered with oil skin. If granulations become too exuberant, growing above the surface of the surrounding skin, and forming what is popularly called 'proud flesh,' they must be lightly touched with alum.

It should be known that superficial burns and scalds, although only producing redness of the surface, are, if extensive, and particularly if occurring to children, very dangerous; that all burns of the trunk are more dangerous than those of the limbs; that repeated shivering is a bad symptom; and that apathy, insensibility to pain, stupor, and twitchings of the limbs, are the usual precursors of death.

It should also be known, that persons with bad burns are peculiarly liable to attacks of bronchitis, or inflammation of the lungs, also to diarrhœa, accompanied by ulceration of the intestines.

As burns heal, there is always great tendency to contraction of the parts, especially if the injury is about the neck or joints. During healing every endeavour should be made, by bandaging, pads, and splints, to keep the parts in a natural position, and thus oppose the tendency to resulting deformity.

Cicatrices, disfiguring scars, contracted joints, and deep ulcers, sometimes the result of burns and scalds, can only be treated on established surgical principles, and probably each case will require a somewhat different plan.

BURNS OR SCALDS OF THE FINGERS AND TOES must be treated with great care, in order that the different parts may be kept separate, so as to prevent the raw surfaces of the fingers or toes touching each other. This may be readily effected by different dressings.

INTERNAL SCALDS OF THE THROAT, affecting the upper part of the windpipe or *glottis*, are very dangerous. Such injuries most frequently occur to children, the symptoms being suffocative cough and difficulty of breathing. Leeches to the throat, ice to the throat, ice to suck, and a tea-spoonful of salad oil every three hours are the best remedies. But such cases frequently require the surgical operation called *tracheotomy*, or opening the windpipe, which can only be performed by a surgeon.

COLLAPSE, SHOCK, or PROSTRATION.—This is a very common accompaniment of all severe injuries, as gun-shot wounds, laceration of joints, blows on the stomach or privates, and severe burns or scalds. Collapse always attends great losses of blood, from whatever cause the bleeding may arise, and it may be produced by fear, by cold, and from large doses of certain poisons. The collapsed person lies cold and half unconscious, with feeble pulse, and sighing, sometimes almost imperceptible, respiration. There is cold sweat, particularly apparent on the forehead, extreme muscular debility, and benumbed sensibility of the skin. The condition altogether is very similar in appearance to that of fainting. In some cases there are nausea, hiccup, and vomiting from the first. If the injury affects the spine, stomach, chest, or private parts, the collapse or shock is more severe. If the brain is affected the insensibility is more complete, although the pulse and respiration may be stronger. Occasionally the person is bewildered and incoherent, as if intoxicated. Vomiting is often a prelude to recovery, the first sign of which is called the *reaction*. When the *reaction* is perfect the pulse becomes stronger and fuller, and the breathing deeper and well marked. The most favourable signs are, returning warmth of the surface of the body, and slight restlessness on the part of the patient, with inclination to lie on the side. In the course of a few hours there may be some fever, indicated by a hot skin, a flushed face, and rapid pulse. These symptoms, however, in favourable cases soon pass off, and complete recovery is established. In unfavourable cases the febrile symptoms increase, and after a few hours signs of nervous excitement and of exhaustion appear. There is trembling of the tendons of the wrist, restlessness, and generally delirium. The pulse becomes feeble, the skin cold, and there may be hiccup and vomiting. Occasionally there are convulsions, although these are more common in children than in adults. Patients who have been accustomed to take considerable quantities of beer or spirits frequently present, during the stage of *reaction*, a series of symptoms very similar to those of *delirium tremens*. In individuals who are naturally weak and delicate, *reaction*, although favourable in its progress, may be slow, so that complete recovery is not attained for several days. In ordinary cases the duration of collapse is very various. The symptoms may pass off quickly, or as much as forty-eight hours may elapse before even *reaction* is established.

Treatment.—The principal requirements are to keep up the action of the heart and lungs, and to maintain the temperature of the body, until the effects of the sudden and violent impression—the shock—to the brain and nervous system have passed away. In the first place the patient *must* keep to the *recumbent* posture; and in a case where there has not been much bleeding, and when no large wound exists from which bleeding may occur, he should be placed between blankets, bottles of hot water, or hot bricks, wrapped in flannel, being placed near the feet and in the armpits, taking care that the heat is not sufficient to burn the patient. Warm brandy and water should be given frequently in small quantities, the brandy being diluted with rather less than an equal quantity of water. But if there is profuse bleeding, brandy must *not* be administered so freely. With respect to the actual amount of brandy to be given in any case, no positive rule can be laid down, as the quantity required differs in most instances. A table-spoonful every half-hour, if there is no bleeding, and a tea-spoonful if there is, may perhaps be accepted as some guide. If brandy is not at hand some other spirit, as whisky or rum, should be used. As with the stimulant in cases of bleeding, so in the application of warmth to the body, great caution must be observed. As a general rule, until the bleeding has been stopped, warmth should only be applied to the feet. It should be recollected that, until *reaction* has well advanced, *the patient must not be raised to an upright position.* After reaction is established, and the patient becomes feverish, purgatives (Recipes 1 and 2), and cooling medicine, as citrate of magnesia, will probably be required. The treatment of the symptoms indicating *imperfect reaction* consists in supporting the system by nourishing broths or beef-tea, and in allaying nervous irritability by sedatives, of which chloral (Recipe 75) is one of the best for the purpose.

CONCUSSION OF THE BRAIN, or BRAIN SHAKE.—This condition, commonly called 'stunning,' signifies sudden interruption of the functions of the brain, by a blow or other mechanical injury to the head, either direct or indirect. Of this condition there are several degrees. In the mildest form the patient experiences a sudden weakness and muscular trembling in the limbs, especially the lower, and cannot walk without staggering; at the same time, there is a ringing sound in the ears and dimness of sight. These symptoms soon pass away, after the person has rested for a time in a darkened room. In the second form of concussion the person falls to the ground, and lies motionless, pale, and unconscious. The skin is cold and the pulse weak. The eyelids are closed, the pupils of the eyes contracted, and the arms and legs generally bent on the body. The breathing is slow and regular, and if the patient is roused and questioned loudly, he opens his eyes, answers hastily, and again relapses into insensibility. It is important to bear in mind the two facts stated in the last paragraph, as they mainly serve to distinguish concussion from *compression of the brain (vide* p. 461), when the breathing is heavy and laboured, and the patient cannot be roused. After a variable time, ordinarily about an hour, the patient moves uneasily, vomits, and recovers his senses, but remains giddy, confused, and sleepy for some hours. In a still more severe degree of concussion, the patient is more profoundly insensible, the surface of the body pale and cold, the pulse not only weak but also intermittent, and the breathing drawn in sighs. If the patient cannot be temporarily roused, if the pupils of the eyes are insensible to light, and if the legs are not drawn away, when the soles of the feet are tickled, the condition is very unfavourable.

It may be noticed that the symptoms marking *concussion of the brain* somewhat resemble those of *collapse*. In fact, concussion cannot exist without more or less collapse, but concussion implies, as well as the state of collapse, a greater degree of implication of the nervous system, arising from the direct injury to the brain. There is, therefore, more insensibility in concussion than from collapse without concussion of the brain.

Although simple concussion of the brain is not the fatal condition popularly supposed, it nevertheless often leaves in its train mischief which may be of permanent and serious import. There may arise an irritability of the brain, marked by hasty, violent temper, or by very speedy excitement after drinking spirits or wine; there may be defects of sight, hearing, smell, or speech, muscular weakness, and nervous debility; or temporary or permanent insanity may even result. These sequences are due in many cases to indiscretion on the part of the patient, who as soon as the symptoms of concussion have passed away, and while the brain is still irritable and enfeebled, returns to his former habits, and probably to brain work. It should be recollected that there is no case of concussion, or of partial concussion, so trivial that it may be neglected with impunity, and the patient should return gradually to his former employments; the less quickly, the more severe the state of concussion into which he was thrown.

Treatment.—The patient should be placed on a bed or couch in a very quiet, darkened room, the neck and chest should be freed from articles of clothing, the head should be slightly raised, and a cold wet cloth should be applied to the forehead. In more severe cases, when the surface of the body is cold, the patient should be placed between blankets, bottles filled with hot water and wrapped in flannel should be applied to the feet and armpits, and the legs, hands, and arms should be well rubbed. Spirits or other stimulants must *not* be administered, but as soon as the patient can swallow, a little water may be given, or, if procurable, broth or beef-tea. If there is long-continued insensibility or imperfect rallying, an assafœtida injection (Recipe 105) should be used. Natural sleep should be encouraged. In the great majority of cases, although the ignorant are often clamorous for more active measures, the simple treatment advised affords the patient the best chance of rapid and thorough recovery.

The after treatment of concussion consists of perfect rest both of body and mind, and in maintaining the bowels freely open by aperients (Recipes 1 and 2), with a mild nutritious diet. Stimulants of all kinds must still be avoided. If headache or feverishness comes on, or any impairment of the mental faculties is observed, a strong mustard poultice (or, if procurable, a blister) should be applied to the back of the neck, and the bowels should be still more freely purged. If unfavourable symptoms persist, it may also be necessary to cut the hair close, and to apply leeches to the temples.

CONCUSSION OF THE SPINE.—Of this injury, as of concussion of the brain, there are minor and severe forms. Concussion of the spine usually occurs from severe shakings, as happen on carriage or railway accidents, or from blows on the spine. Concussion of the spine is marked by more or less severe pain at the seat of injury, general bodily prostration, weakness of the lower limbs, or even difficulty of walking, numbness in the feet, and diminished sensation in the skin of the lower extremities. In more severe cases there may be difficulty of making water, and swelling of the bowels, due to their distension by gas. If the injury has been only concussion or shaking of the spinal marrow, and nothing has been torn or ruptured, these symptoms usually subside in the course of two or three weeks, and the patient recovers thoroughly. In some instances permanent weakness of the lower limbs, or even complete palsy, with more or less difficulty or inability of making water, results. The treatment of concussion of the spine consists mainly in keeping the patient in bed, in applying leeches to the painful part of the back or loins, and in giving tonics and nourishing food.

The severe shakings consequent on railway accidents have resulted in the production of a peculiar condition of the spinal cord, to which the term 'railway spine' has been applied. The rapidity of the movement causing the injury, the momentum of the person injured, the suddenness of its arrest, the helplessness of the sufferer, and the natural fear occasioned, are all circumstances in railway accidents greatly increasing the severity of the injury to the nervous system, and which have caused these cases to be considered as somewhat exceptional from ordinary accidents. A patient is often unaware that anything serious has happened, feeling perhaps only violently jolted and a little giddy and confused. After a while, however, he becomes excited and cannot sleep, and probably the next day, or the day after, feels bruised all over as if he had been beaten, or had gone through some violent exertion. This stiff strained feeling chiefly affects the muscles of the back and loins, but often extends to the shoulders and thighs. After another few days he finds he is unable to undergo any exertion, or to attend to business. The thoughts become confused, the temper irritable, the sleep disturbed, and there are often noises and singing in the ears. The senses of hearing, taste, and smell sometimes become perverted. There is also a loss of freedom of movement, and the gait becomes uncertain and 'straddling,' while one or both of the feet may be unusually cold. Sometimes these symptoms begin to develope immediately after the injury; sometimes not for days or even weeks. When such results follow a railway accident, it is rarely that the patient recovers his former health. With regard to treatment, the first thing is *complete rest*, both for body and mind, and cold lotions or ice should be applied over any part of the spine in which pain is felt. Internally, the bichloride of mercury, with quinine and bark, are perhaps the most satisfactory remedies.

It is worth mentioning, that a very similar condition arises from the effects of fright, as during bombardment of cities, from fires, or from lightning stroke.

COMPRESSION OF THE BRAIN.—This results either from blood being effused beneath the skull, or from a piece or pieces of bone being detached or depressed, and driven down on the brain or its membranes, both of which conditions may be the result of blows or other injuries; or, at a later period, from the consequent formation of matter. When, after the symptoms of *Concussion of the Brain* (*vide* p. 457), or after severe injuries without such symptoms, the patient does not revive; or reviving, afterwards sinks into stupor, from which he cannot be roused; with heavy laboured breathing, accompanied by puffing movement of the muscles of the mouth, with one or both pupils of the eyes dilated, with the surface of the body becoming warmer, and the pulse quicker and full, and perhaps with bleeding, or watery discharge from the ears and nose, serious injury of the brain may be suspected. Such a condition requires skilled advice. Stimulants must not be given, but a cold lotion may be applied to the head, purgative injections (Recipe 105) should be administered, and the operation of 'trepanning' may be necessitated.

The principal distinctions between *concussion* and *compression* of the brain are given below.

CONCUSSION.	COMPRESSION.
Insensibility takes place immediately on receipt of injury.	Insensibility, although sometimes present from the first, generally comes on gradually.
Breathing intermittent, diminished in force, often sighing, never stertorous.	Breathing slow and laboured, often stertorous, and accompanied with puffing movement of the lips and cheeks.

CONCUSSION.	COMPRESSION.
Pulse small, thready, intermittent, sometimes quick.	Pulse slow, full, and bounding.
Pupils of the eyes generally contracted.	Pupils generally dilated.
Skin sensitive to prick of pin, or to pinching.	Skin not sensitive.
Surface of body cold and pale.	Surface of body warm, moist, and of natural colour.
Patient can be roused so as to answer questions.	Patient cannot be roused.
Retching and vomiting are very constant symptoms.	Retching and vomiting absent.

DISLOCATIONS.—A bone is said to be dislocated, or vulgarly, 'put out,' when the head of the bone slips from the socket in which it plays.

Symptoms.—The chief symptoms of all dislocations are —1. Pain. 2. Deformity; there being an alteration of the normal shape of the joint; such as an unnatural prominence in one part, and a depression at another, together with generally *shortening*, but in some varieties *lengthening*, of the limb. 3. Loss of the proper motion of the joint.

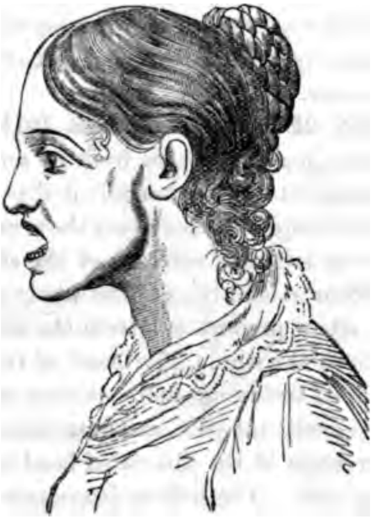
Dislocations are to be distinguished from *fractures* near the joint; *first*, by the absence of *grating* on movement of the injured parts; *secondly*, a fractured bone is more freely movable than natural, a dislocated bone is less so; *thirdly*, if a fractured bone is drawn into its proper place it will return so soon as the 'extension,' or pulling, is discontinued, but a dislocated bone drawn into its proper position will remain there; *fourthly*, by measurement of the *bone* supposed to be broken, which, if fractured, will be shortened, while the dislocated bone is of the natural length. Comparisons of the length may be made with the bone of the sound limb.

Treatment.—Dislocations must be 'reduced,' or returned into place. Sometimes this can be effected by placing the parts in such a position that the muscles will draw the head of the bone into its socket. But most usually force is required to accomplish this. After reduction, fomentation will always, and leeches sometimes, be necessary to relieve inflammatory pain and swelling. Dislocations should always be reduced as soon as possible, otherwise the muscles contract, and fix the bone in its new position.

Compound Dislocation is the term applied to those cases when (as mentioned of fracture) an external wound communicates with the dislocated joint. But such injuries are always more dangerous, requiring skilled surgical advice.

The more common forms of dislocation are now described separately.

DISLOCATION OF THE LOWER JAW.—This may be caused by a blow on the mouth, or sometimes from spasmodic action of the muscles when a person gapes. The mouth is open and cannot be shut. Speech and swallowing are scarcely possible, the saliva dribbles away, and the chin protrudes forwards, as in the above figure, so that the lower row of



teeth project beyond the middle teeth of the jaw above. Sometimes one side only of the bone is dislocated, and then the teeth are displaced laterally *away* from the side of dislocation.

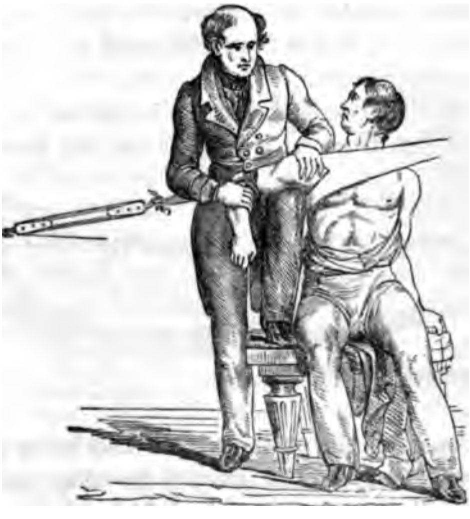
Treatment.—Put the patient in a chair, with the back of the head against a wall. Then let the operator wrap a napkin or handkerchief round each of his thumbs. Place the thumbs thus protected on the back teeth of the lower jaw, the fingers clasping the under part of the jaw outside. Then press the thumbs firmly downwards and backwards, elevating the chin at the same time with the fingers. The jaw will generally return into its proper place with a snap, and if the thumbs of the operator were not protected, they would probably be injured by the patient's teeth. Afterwards a four-tailed bandage, as described for a broken jaw (*vide* p. 495), should be worn for a week, during which time the patient should have only fluid food, and not attempt to masticate solids too soon.

DISLOCATION OF THE SHOULDER JOINT.—The *humerus*, or arm bone, may be thrown from its socket in several different directions, but most commonly it slips by the side of the socket into the armpit. In this injury the arm is *lengthened*, a hollow is seen or felt under the tip of the shoulder, where the head of the bone should be, and the whole shoulder looks flattened. The elbow projects out from the side, and cannot be brought to touch the side. The head of the bone can be felt in the armpit, becoming more evident if the elbow is raised. There is also great pain, and numbness of the fingers, caused by the pressure of the dislocated head of the bone on the nerves of the arm. The patient leans over to the side of dislocation, and supports the elbow of the injured side with the opposite hand.

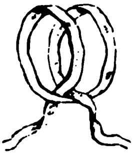
In addition to the above-mentioned signs (or without such features, if the dislocation is in other directions), the shoulder may be recognised as 'out of joint,' if the fingers of the injured limb cannot be placed by the patient, or by some one else, on the sound shoulder, while the elbow touches the side. In the natural state of the parts this can be easily done; and if it can be accomplished, there is no dislocation. Again, the shoulder should be measured, by carrying a tape round the prominent bone at the tip, and under the armpit. If the shoulder is out, the injured side will measure about two inches more than the sound one. Thirdly, if there is a dislocation, a straight stick or rule will touch both the tip of the shoulder and the elbow at the same time, which it cannot do, when the bones are in their natural places.

Treatment.—There are several methods by which this injury may be righted; but if any *grating* should be felt or heard on moving the injured limb, attempts at replacement should *not* be continued, as there is probably also *fracture.*

First.—A long strong towel, or other piece of cloth, should have a slit made in the centre. Through this slit the hand and arm must be passed, until the towel presses on the



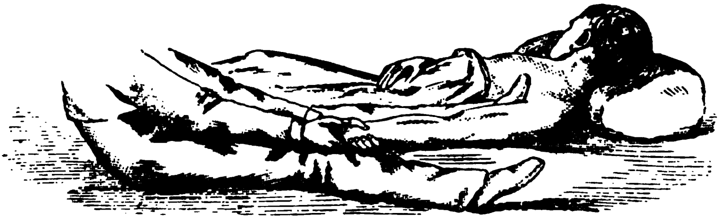
chest below, and on the upper part of the shoulder above. Another long towel, or piece of cloth, must be fastened round the arm above the elbow. The patient should then sit on the floor, or on a low stool. Then, let the chest towel be firmly held, while the arm towel is *gradually* pulled by assistants, the operator standing behind the arm. After the extension has been continued for two or three minutes the operator should lift the head of the bone with his knee, when it will probably pass into the socket. The positions necessary are shown in the preceding drawing.



Note.—When fixing the towel, or piece of cloth, round any limb, the knot called the *clove-hitch* should be used, as it does not tighten round the limb when pulled (*vide* sketch).

The most certain plan is with the towels, as above described. But other methods may be tried on occasions when towels are not immediately available. They are however, more adapted to replace the arm-bone when, as sometimes happens, it has been dislocated a second or third time in the same person.

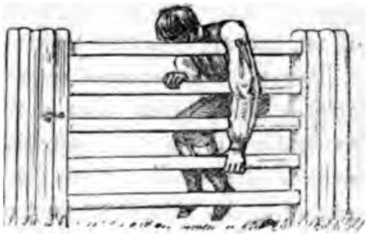
Secondly.—By the heel or foot, in the *axilla* or armpit. The patient lies down on a bed, or on the floor, and the



surgeon or operator sits on the edge. The latter then places his *unbooted* foot in the armpit, pressing upwards and outwards, at the same time grasping the hand and wrist, which he pulls steadily towards him. The head of the bone will then probably pass into its place. Sometimes this can be best effected by the flat of the foot being in the armpit, at other times the greater pressure to be made by the heel is required. The left foot should be used if the left arm is to be operated on, and *vice versâ*.

Thirdly.—Have the patient seated on a chair, rest your foot on the chair, and place the bent knee in the armpit. The positions necessary are shown in the sketch accompanying the first method. Then depress the elbow with the hand, and at the same time raise the head of the bone with the knee, and it will probably glide into its place.

A person who has repeatedly dislocated his shoulder—and the accident is always more liable to happen after having once occurred—may, if he have courage to bear a little pain for a few minutes, even manage to reduce it himself. By getting his arm over the top rail of a gate, or over any other object affording similar purchase (which, if square, should be first covered by some article of clothing), seizing one of the lower rails with the hand of the injured arm, letting the whole weight of the body hang over the other side of the gate, and then making some movement to change the position of the body while its weight still tells on the top bar, the bone will probably slip into its place. The principle is exactly the same as when the heel is put into the armpit, and the arm pulled. The head or top of the arm-bone is moved towards the edge of the socket from which it has escaped, and thus placed the muscles pull it into its place. The position is shown above.



DISLOCATION OF THE ELBOW.—This may occur backwards, or to either side, and one or both bones of the forearm may be displaced. In a case of complete dislocation there is much deformity and swelling, the joint being bent at a right angle, and remaining almost immovable, while the thumb and outer surface of the wrist are turned forwards. In dislocation to one side there is of course more deformity on that side. In dislocation of one bone only the deformity is less. Dislocation of the elbow is chiefly to be distinguished from fractures about the joint by the absence of grating movement.

Treatment.—One person must take firm hold of and steady the upper arm above the elbow. Another must pull from the wrist. After extension for about two minutes, the elbow must be suddenly bent by the person holding the wrist, when the bones will resume their natural position.

As above mentioned, dislocations of the elbow are distinguished from fractures by the absence of grating; but it often happens that in injuries of this joint one or other form of dislocation is combined with one or other form of fracture, especially of the bones forming the point, and side prominences of the elbow. This complicates the case; splints are generally required, and the services of a surgeon should be procured. Until professional aid is obtained, the best plan is to lay the elbow, bent almost at right angles, on a pillow, and apply a cold lotion (*vide* p. 592).

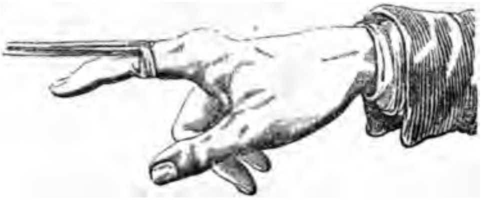
Partial Dislocation of the Elbow in Children.—The forearm of children from a fall, or drag upon the wrist, is frequently subject to a peculiar displacement caused by the head of the smaller bone (or *radius*) slipping forward and lodging against the front part of the bone of the arm. The arm when thus injured hangs down, and the hand is supported by the other. The hand is also turned inwards and downwards. All attempts to move the hand give considerable pain. The position which the child thus injured naturally assumes, as the most easy posture, namely, supporting the injured forearm with the sound hand, gives an appearance at first sight very much resembling the characteristic posture assumed by persons with fractured collar-bone. But on feeling the latter bone it will be found there is no fracture there. To remedy this accident at once, take hold of the upper arm firmly with the left hand, and the patient's hand with the right hand, in such a manner that the back of the patient's hand lies in the palm of the operator's. Now bend the elbow joint quickly, turning the forearm outwards, so as to bring the palm of the patient's hand to front his upper arm. A crack will probably be felt, and the child will be able to use the arm.

DISLOCATION OF THE WRIST.—This may be distinguished by the altered position of the hand, which is thrown backwards or forwards, or is twisted, if only one bone is dislocated.

Treatment.—Simple extension of the hand, and if the natural position is not retained the application of splints as for fractured forearm. Fractures of the lower end of the forearm are, indeed, often mistaken for dislocations, and in all cases of doubt, after extension, it will be best to apply splints as for fracture. (*Vide Fracture of the Forearm*, p. 501.)

DISLOCATION OF THE THUMB AND FINGERS.—These accidents are known by the deformity present, and in consequence of the strength and tightness of the ligatures fixing the joints such injuries are often difficult to treat.

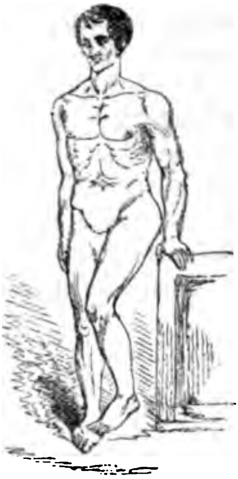
Treatment.—If the dislocated bone does not return into position by simple extension with the hand, a firm hold must be obtained by a piece of tape fastened as represented above, by the clove-hitch knot (*vide* p. 466). Then the wrist must be held by one person, while another pulls the tape till the bone slips into its place.



DISLOCATION OF THE HIP JOINT.—There are four principal varieties of this dislocation, but the dislocation *upwards* is the most frequent.

Symptoms.—The injured limb is from one inch to one inch and a half *shorter* than the other. The toes rest on the upper surface of the foot, or on the instep of the sound limb, the knee is turned inwards, and is a little advanced on its fellow, the hip generally appears flattened, but the dislocated head of the thigh bone forms an unnatural prominence above and behind the situation of the hip joint, the limb cannot be moved, and if force is applied to straighten the limb the patient's back becomes arched.

Fracture near the head of the thigh-bone is distinguished by these differences: In fracture the limb can be moved more freely; it is turned outwards instead of inwards; it can be drawn down to its natural level, but becomes again shortened as soon as the extension is discontinued; whereas a dislocated bone requires forcible extension to place the limb in its natural position, from which it does not again escape. The



position of the limb, when the hip is dislocated upwards, is shown on the preceding page, and may be compared with *fracture*, p. 504.

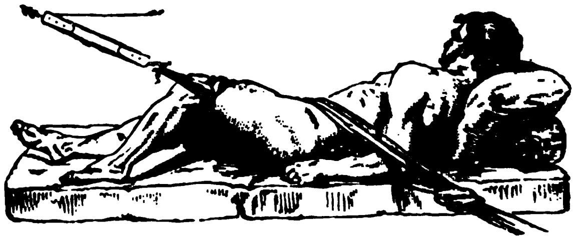
Treatment.—Place the patient on his back on the floor, and while he is firmly held by the shoulders, grasp the foot and ankle firmly, and by gradual extension parallel with the body, and rotation of the limb outwards at the same time, the head of the bone, if recently dislocated, will probably slip into its place.

Or the patient's body being well steadied by an assistant holding the opposite hip, the operator seizes the ankle of the injured limb with one hand and the knee with the other, bending the leg on the ham, and the thigh on the abdomen as much as possible. Then the knee is made to take a wide sweep *outwards* as far as it will go, when the whole limb is brought down to its natural position, being at the same time straightened.

Either measure will be more likely to succeed if the patient can be put under the influence of chloroform. If chloroform is not available, one grain of tartar emetic may be given in an ounce of water every half-hour till nausea is produced, and which is attended with relaxation of the muscles.

But if these methods do not succeed more force must be used. A strong towel or sheet must be passed round the upper part of the thigh, and so adjusted that it does not interfere with or press on the private parts. This towel must be secured to a hook or ring in the wall, or to a tree. A bandage must next be applied over the thigh, as a protection to the skin, and then another towel or sheet must be fixed by the clove-hitch knot (*vide* p. 466) to the same part. When all is prepared extension must be firmly but gradually made, so as to draw the thigh across the opposite one a little above the knee. After a couple of minutes the knee should be gently turned, and the head, or upper part of the thigh lifted up, when the head of the bone will perhaps return into its socket. But many such cases require hot baths or chloroform to relax the muscles, and often pulleys to apply more equable force, under which circumstances the operation will require the skill of a surgeon. Similarly, in most other forms of the dislocation of this bone, special knowledge is necessary, so that no other variety is here described.

The position for the reduction of a dislocated hip is shown below.



After the reduction of the hip the knees should be tied together, and the patient should be kept in bed for some days. After such injuries it sometimes happens that the patient is unable to make water. Fomentations over the bowels will perhaps relieve this condition; otherwise the catheter must be passed (*vide* p. 430).

When no attempt can be made to reduce a dislocated hip, or when attempts fail, the patient should lie on the back, and his thighs should be fastened together with a broad bandage.

DISLOCATION OF THE KNEE-CAP.—This bone may be dislocated either inwards or outwards, most frequently in the latter direction. In some cases it is half twisted on its axis, so that its outer or inner edge rests upon the front of the lower extremity of the thigh-bone. A twisted knee-cap is the worst form of this injury, and it occasionally becomes so immovably fixed that it cannot be replaced. The symptoms are that the knee cannot be bent, and the bone may be felt in its new position, while there is a depression in the natural position of the bone.

Treatment.—It should be replaced by straightening and well raising the leg, so as to relax the muscles in front, then lifting the bone with the thumb and fingers into the middle of the joint, after which a splint should be applied loosely behind the knee. Then the patient must be put to bed, and fomentations should be employed to prevent inflammation. The person should not attempt to walk for a month afterwards, and then use a bandage round the knee, or an elastic knee-cap. The injury is likely to recur unless great care is taken.

DISLOCATION OF THE KNEE JOINT.—The leg may be displaced from the knee, forwards, backwards, or to either side, but owing to the large extent of the opposed surfaces forming the joint, and to the strength of the ligaments, dislocation of the knee is always partial. These injuries are usually caused by violent and sudden twists of the joint. In lateral displacement there is an unnatural projection of the inner or outer extremity (condyle) of the thigh-bone on the one side, and a projection of the inner or outer extremity of the leg-bone on the other, while the foot and leg are generally more or less twisted. Dislocations of the knee joint, either forwards or backwards, are still more serious injuries, and are always associated with much tearing of ligaments and soft parts surrounding the joint. In the backward dislocation the lower end of the thigh-bone projects in front, and the hollow at the back of the joint is occupied by the displaced head of the leg-bone. The dislocation forwards is a rare form of injury, and is always accompanied by much laceration of the soft parts, and often by rupture of the ham-string tendons.

Treatment..—The thigh should be fixed by being tightly held while the patient lies on his back. Then extension should be made by pulling steadily from the ankle. After the parts have resumed the natural position, fomentations should be applied, and the patient should be kept in bed for at least three weeks.

DISLOCATION OF THE SEMILUNAR CARTILAGES OF THE KNEE JOINT.—The semilunar cartilages are two flat gristly structures of a horseshoe shape, which are fixed to the margins of the upper surface of the leg-bone. One or both of these may, in consequence of a sprain or twist, become detached and slip between the opposed surfaces of the thigh and leg bones. The symptoms are sudden, severe, *sickening* pain in the knee, and inability to walk. But the leg, though stiff and painful when the person is erect, can be generally moved when he lies down. After the accident the knee begins to swell, and remains swollen for some days. If the patient is seen immediately, before the joint begins to swell, reduction of the cartilage may be readily effected by first extending the leg, and then suddenly bending it backwards until the heel touches the corresponding buttock, the other hand of the operator being placed on the front of the knee. Afterwards fomentations and rest for some time will be necessary. If the patient is not seen until the knee is swollen, fomentations and rest should be had recourse to, and the cartilages will gradually assume their natural position; but the patient should not attempt to walk until all pain and swelling have ceased. This injury having once happened is very liable to recur from slight causes, and the person should wear a bandage or tight knee-cap for months afterwards.

DISLOCATION OF THE ANKLE.—This is generally caused by jumping from heights, or from carriages in motion, and is nearly always complicated with fracture of the small bone of the leg above the ankle. The dislocation may be either inwards or outwards, and the swelling on either side will be the chief distinguishing mark. The dislocation inwards, involving fracture of the small bone on the outside, is, however, the most common variety. The shape of the foot will then be as below, presenting a hollow on the outer side at the site of the fracture of the small bone, the sole of the foot being turned rather inwards.

Treatment.—The person should be placed on his back, with the thigh raised and the knee bent. Then, while an assistant steadies the knee, the operator must grasp the instep with one hand and the heel with the other, and pull gradually and firmly till he has restored the parts to a natural shape. Then the limb should be bound up with splints on each side, as for a fractured leg; care being taken to keep the great toe on a line with the inner side of the knee-pan. The patient should lie on his back, although some surgeons prefer treating this accident by placing the patient on the side corresponding with the injury, the knee being bent. (*Vide Fractures of the Leg*, p. 511.)

DISLOCATIONS OF THE BONES OF THE FOOT.—Such injuries are the result of great violence, are mostly attended with fractures, and will require the attention of a surgeon. Until this can be obtained the parts should be placed as far as possible in the natural position, perfect rest on a pillow should be enjoined, and fomentations applied.

DROWNING.—The injurious effects of submersion in water, if prolonged, may be twofold. If the water is warm, the principal hurtful effect will be the suspension of respiration, or suffocation; but if, as is often the case, the water be cold enough to extract heat from the body, a very powerful depressing action is added. As regards the *asphyxia*, or 'suffocation,' caused by suspension of respiration, it is of exactly the same character, whether it has been induced by drowning, by hanging, or by breathing air deficient in oxygen. In the treatment of all these accidents *Artificial Respiration* is the means worthy of the greatest confidence, and this should be promptly resorted to and perseveringly continued.

Leaving to others the task of stripping off wet clothing and wiping the body dry, the most intelligent person present should act according to the directions given below.

The following rules are those published by the Royal Humane Society, after special communication with, and experiments by, a committee of the members of the Medico-Chirurgical Society of London:—

Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient INSTANTLY, securing as much fresh air as possible.

The points to be aimed at are—first, and immediately, the *Restoration of Breathing*; and secondly, after breathing is restored, the *Promotion of Warmth and Circulation*.

The efforts to restore life must be persevered in until the arrival of medical assistance, or until the pulse and breathing have ceased for at least an hour.

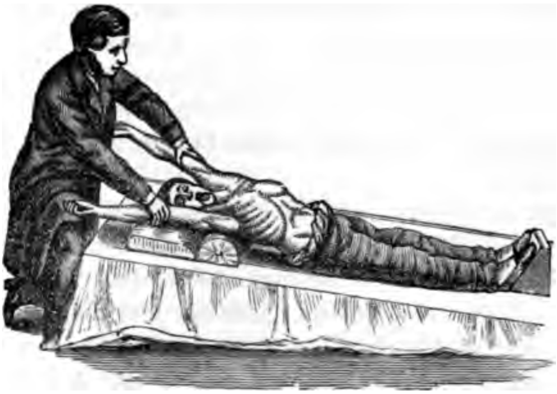
TREATMENT TO RESTORE NATURAL BREATHING.

1. *To Maintain a Free Entrance of Air into the Windpipe.*—Let the water run out of the mouth, and cleanse the mouth and nostrils; open the mouth; draw forward the patient's tongue, and keep it forward; if available, an elastic band (from a purse or pocket-book) placed over the

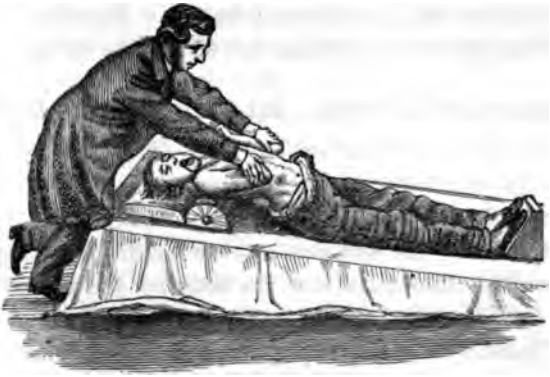
tongue and under the chin will answer this purpose. Remove all tight clothing from about the neck and chest.

2. *To Adjust the Patient's Position.*—Place the patient on his back on a flat surface, inclined a little from the feet upwards; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades.

3. *To Imitate the Movements of Breathing.*—Grasp the patient's arms just above the elbows, and draw the arms



INSPIRATION.



EXPIRATION.

gently and steadily upwards, until they meet above the head (this is for the purpose of drawing air into the lungs); and keep the arms in that position for two seconds. Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest (*vide* preceding engravings). This is with the object of pressing air out of the lungs. Pressure on the breast-bone will aid in effecting this requirement.

Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to INDUCE CIRCULATION AND WARMTH (*as below*).

Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate the movements of breathing. Raise the body in twenty seconds in a sitting position, and dash cold water against the chest and face, and pass ammonia under the nose. The patient should not be kept in the warm bath longer than five or six minutes.

4. *To Excite Inspiration.*—During the employment of the above method excite the nostrils with snuff or smelling-salts, or tickle the throat with a feather. Rub the chest and face briskly, and dash cold and hot water alternately on them.

TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

5. *To Induce Circulation and Warmth.*—Wrap the patient in dry blankets, and commence rubbing the limbs *upwards*, firmly and energetically. The friction must be continued under the blankets or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, &c., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet.

Warm clothing may generally be obtained from bystanders.

On the restoration of life, when the power of swallowing has returned, a tea-spoonful of warm water, small quantities of wine, warm brandy and water, or coffee should be given. The patient should be kept in bed, and a disposition to sleep encouraged. During re-action, large mustard plasters to the chest and below the shoulders will greatly relieve the distressed breathing.

APPEARANCES WHICH GENERALLY INDICATE DEATH.—There is no breathing or heart's action; the eyelids are generally half-closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue appearing between the teeth, and the mouth and nostrils are covered with a frothy mucus. Coldness and pallor of surface increase.

Cautions.—Prevent unnecessary crowding of persons round the body, especially if in an apartment.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet.

FOREIGN BODIES LODGED IN THE PERSON.—The term 'foreign body' is applied to any substance which penetrates the surface of the body, either by the natural passages or through the skin. Shot, bullets, arrow-heads, splinters of wood, pieces of iron, scraps of cloth, buttons, and many other substances often become foreign bodies in the person. The force of a shot or other missile may often splinter a bone, when the splinter, dying, ceases to be a portion of the living body, and then acts as an irritant foreign body.

FOREIGN BODIES IN THE NOSE.—Such articles as peas, beans, small stones, slate pencil, insects, may be thrust into the nostrils by children, or may be accidentally inserted. They may be frequently discharged by compressing the other nostril with the fingers, and then blowing forcibly through the obstructed nostril. If this does not succeed, snuff may be given to excite sneezing, or the nostrils may be syringed with warm water. These measures failing, a mustard and water emetic may be given, and when vomiting occurs, the mouth should be stopped by the hand. A rush of fluid will then take place from the stomach through the nose, and probably dislodge the foreign substance. If no effect is thus produced, a probe or piece of wire, bent into the form of a loop, or hook, may perhaps be passed *above* the substance so as to hook it down. Or it may sometimes be seized with a pair of forceps. Care must be taken not to push the foreign body backwards, and digging attempts *upwards* towards the head, should be avoided. When a foreign body cannot be extracted, it will frequently work out if left alone.

FOREIGN BODIES IN THE EARS.—The first thing is to examine the ear (*vide* p. 168), to make sure there is really anything inside, as well as to ascertain its size and situation. Unless the foreign body is something which might swell from moisture, as a pea, for instance, syringing with warm water (*vide* p. 168) should always be first tried. When ordinary syringing fails, the patient should lie with the head over the side of a couch, the affected ear being most dependent; so that gravity may be called into play, and the ear should be again syringed while in this position. The form of the canal of the ear is so peculiar, being curved and widest at each extremity, and the shapes of foreign substances are so various, that efforts to remove them by other means than a current of water, should be most carefully undertaken. If syringing does not succeed, the best plan, and most applicable to all substances, is the use of a wire loop. Take a piece of fine flexible wire, double it, and then pass the loop into the ear, keeping it against the upper surface, then lower it gently until the foreign body is within the loop and then extract. This plan offers the advantage, that the loop is less liable to injure the internal part of the ear than forceps.

But in some cases the substance may be easily seized and extracted by a pair of thin forceps. In other instances a probe end, with a little cotton wool attached, dipped in carpenters' glue, has been introduced and held firmly against the foreign substance until the glue dries, or for about half an hour, when all was removed together. In this manner a glass bead has been extracted, which could not otherwise be taken out. Great care must be taken not to injure the drum of the ear by pushing the foreign body, or the probe or wire used for its extraction, inwards—or by too forcible syringing. So common are forcible attempts to extract, that very frequently inflammation is excited thereby, which would not have come on from the presence of the foreign body alone.

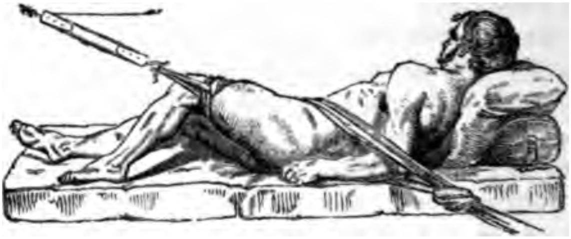
Insects may be generally removed, or at least killed, and the pain they create therefore diminished, by pouring a little salad oil into the ear; or, if oil is not at hand, a saturated solution of salt and water.

After the removal of a foreign body from the ear, if much manipulation or syringing has been required, the ear is painful, and sensitive to cold, from which it should be carefully guarded by the use of cotton wool for some days; otherwise inflammation or abscess might occur.

FOREIGN BODIES IN THE EYES may be often removed by simply raising the upper eyelid, drawing it down over the lower, and allowing the lids to separate themselves. Blowing the nose vigorously will sometimes effect removal. Otherwise, the eye must be opened, and the offending substance removed with the corner of a handkerchief, or camel-hair brush, or a feather. But if the lodgment has taken place under the upper lid, the eyelid must be turned inside out. This is done by placing a probe on its middle *horizontally*, seizing the lashes with the fingers, and turning the lid back over the probe, when the inside of the lid will be exposed, and the substance, which generally lodges just above the margin of the upper lid, may be removed.

its socket. But many such cases require hot baths or chloroform to relax the muscles, and often pulleys to apply more equable force, under which circumstances the operation will require the skill of a surgeon. Similarly, in most other forms of the dislocation of this bone, special knowledge is necessary, so that no other variety is here described.

The position for the reduction of a dislocated hip is shown below.



After the reduction of the hip the knees should be tied together, and the patient should be kept in bed for some days. After such injuries it sometimes happens that the patient is unable to make water. Fomentations over the bowels will perhaps relieve this condition; otherwise the catheter must be passed (*vide* p. 430).

When no attempt can be made to reduce a dislocated hip, or when attempts fail, the patient should lie on the back, and his thighs should be fastened together with a broad bandage.

DISLOCATION OF THE KNEE-CAP.—This bone may be dislocated either inwards or outwards, most frequently in the latter direction. In some cases it is half twisted on its axis, so that its outer or inner edge rests upon the front of the lower extremity of the thigh-bone. A twisted knee-cap is the worst form of this injury, and it occasionally becomes so immovably fixed that it cannot be replaced. The symptoms are that the knee cannot be bent, and the bone may be felt in its new position, while there is a depression in the natural position of the bone.

Treatment.—It should be replaced by straightening and well raising the leg, so as to relax the muscles in front, then lifting the bone with the thumb and fingers into the middle of the joint, after which a splint should be applied loosely behind the knee. Then the patient must be put to bed, and fomentations should be employed to prevent inflammation. The person should not attempt to walk for a month afterwards, and then use a bandage round the knee, or an elastic knee-cap. The injury is likely to recur unless great care is taken.

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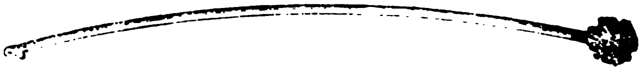
in the gullet of a child, or in other words, when a child 'chokes,' the forefinger should be instantly passed into the throat, and the substance, if possible, hooked up or pushed down. If the finger does not reach the foreign body, a sharp blow on the child's back should be given with the flat of the hand. It will add force to the blow if the child is taken between the knees, so as to compress the belly; otherwise much of the impetus of the blow is lost by transmission to the yielding walls of the abdomen.

Thus fish bones, or other bones, or various foreign bodies lodged high up in the gullet may often be removed by the fingers; or in other instances they may be laid hold of with a long pair of curved forceps. Or they may be, perhaps, brought up by the vomiting occasioned by passing the fingers into the throat in their search, or they may sometimes be dislodged by pressure with the fingers outside. Hard, angular, or pointed substances, such as false teeth and teeth-plates, should always, if possible, be got up. But softer substances, when lodged low down, may sometimes be impelled onwards into the stomach by swallowing large pieces of food, or they may probably be ejected by an emetic (Recipe 77). Or they may perhaps be softened or dissolved by repeatedly swallowing dilute mineral acid. If these measures fail, a *probang* must be passed, to push the intruding substance into the stomach. This instrument is a long stick of whalebone slightly bent, with a piece of sponge attached to one end, and a small hook to the other, as below. If such an instrument is not available, a substitute may be extemporised as follows:—Obtain a slip of whalebone or cane, and tie firmly to one end of it a knob of sponge about the size of a marble. The patient is made to sit with the head well thrown back, and the tongue should



be put out, when the operator introduces the probang, sponge end first, into the throat *so as to touch the back part,* and then pushes it gently onwards and downwards towards the stomach, so as to displace and send before it the foreign mass into the stomach. Or the hooked end may be passed, under the hope of bringing the foreign body upwards. Or a number of loops of thread may be attached to the hook and passed down the throat, as foreign substances have sometimes been thus caught and brought up when other means have failed. But these operations can scarcely be performed except by a surgeon; although they should be tried, rather than a sufferer be left without attempts at relief. After removal, a sense of soreness of the throat and gullet often remains, leading the person to suspect the substance still there.

Needles swallowed, if not easily removable, should be left alone. They will probably work out harmlessly through some part of the skin.

FOREIGN BODIES IN THE WINDPIPE cause difficulty of breathing and violent cough, and are sometimes expelled by the latter. If the patient is a child, he, or she, should be held up by the legs with the head down, and the back should be gently tapped. If an adult, the patient should be placed on a slanting board as far as possible in the same position, and the back slapped. Coins and similarly shaped bodies have thus been got rid of. If these means do not succeed, and difficulty of breathing is urgent, nothing but a surgical operation will afford a chance of relief. Otherwise, if there are no urgent symptoms the patient must be kept quiet, and the foreign substance becoming coated with mucus, or becoming softened, may be coughed up.

FOREIGN BODIES IN THE STOMACH.—When any foreign substance has passed into the stomach, as, for example, coin, a marble, a piece of glass, or artificial teeth, the object is to allow it to pass through the intestines well enveloped in food, and as it passes on in fæcal matter. Therefore no purgatives should be given. The person should abstain from fluids, but otherwise the usual diet should be taken. A change of diet to rice pudding, cheese, and hard-boiled eggs, with the view of producing hard consistent stools, enveloped in which the foreign body may pass without injury to the bowels, is sometimes recommended. But such changes of food will as often as not, in the first instance, induce looseness of the bowels, and thus do injury. If metal has been swallowed, nothing acid should be taken, as it might dissolve the metal and produce poisonous compounds.

Leeches, when applied to the interior of the mouth, or when present in water, have sometimes been swallowed, giving rise to very unpleasant symptoms. When this accident happens, a table-spoonful of common salt dissolved in four ounces of water should be immediately taken, and repeated in half an hour, when the leech will be probably killed, or vomited up. If salt is not at hand, wine taken gradually, in the proportion of half a wine-glassful every ten minutes, is a good remedy.

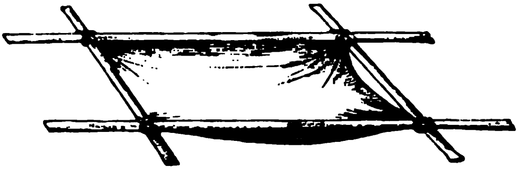
FOREIGN BODIES IN THE SKIN.—Splinters of wood, thorns, needles, fish-hooks, nails, &c., may be embedded in the skin. Splinters of wood or other similar shaped substances should be, if possible, seized by forceps and dragged out. To accomplish this, slight enlargement of the wound with a lancet may be necessary. Or they must be left a day or two and the part poulticed, when, becoming loose, they may be more easily extracted. Needles and fish-hooks in the person will be generally more easily extracted by pushing them out by the points, care being taken that they do not break. Needles introduced beneath the skin, often travel to distant parts of the body, and therefore no operation should be undertaken for their extraction, unless the substance can be plainly felt.

FOREIGN BODIES UNDER THE NAILS. — Thorns, splinters of wood, &c., embedded in this position must be extracted after gradually paring down the nail until the foreign body can be seized by forceps. If this cannot be effected after the nail is pared to the quick, it will be best to poultice for a day or two, when probably the intruding substance will be loosened, and may be extracted.

FOREIGN BODIES IN OTHER PARTS.—Foreign bodies sometimes become impacted in the private parts or fundament, and may consist of substances which have been swallowed, as fruit stones and fish bones, or of articles introduced from without. As they cannot be extracted easily, the assistance of a surgeon will probably be required.

FRACTURED OR BROKEN BONES.—These accidents are spoken of as *simple fractures*, when there is no external wound leading from the surface of the skin to the injured bone. When there is such a wound they are called *compound fractures*. Compound fractures are much more dangerous than simple fractures, and are also more troublesome, as, in addition to treating the fracture, the wound must be cleansed and dressed daily, involving in every case different adjustment of splints and bandages, in order to get at the wound easily, without interfering with or moving the fractured bone. Fractures implicating joints are the most dangerous.

The principles of treatment of all fractures are to place and retain the fragments in perfect rest in their natural position, until they have united. But before this can be done, there is generally the management of the patient immediately after the accident, and the precautions to be taken in removal to home or hospital, which are matters of great importance. Much harm is often done by moving the patient, without taking any preliminary means to protect the injured limb, and especially so in fracture of the lower extremities. The first thing to do before allowing the patient to be moved, is to expose the part, and ascertain the nature of the injury, and the clothes, or boots, should be *cut*, not *pulled*, off. If the patient has now to be removed, this must be done without disturbing the broken limb. If the leg or thigh be broken, a hurdle, or shutter, or door, or *charpai* covered with straw, coats, or blankets, may be converted into an excellent litter, which should be laid down by the sufferer's side, and he can then be gently and quickly lifted upon it, by just as many persons as are sufficient to raise him up a very little from the ground—and by no more—as the greater the number of assistants the less likely are they to act efficiently together (*vide* p. 691). The shutter or hurdle should be carried by the hand, and the bearers should 'keep step' to avoid shaking. If poles are procurable they may be fixed beneath each end of the litter, which will thus be carried long distances more easily. If neither hurdle, door, *charpai*, nor shutter can be obtained, a good substitute may be made by fastening four stout poles together, and tying a blanket securely to them, as shown below.



Having got the person on the shutter, or litter, it is a good plan to bring the sound limb close to the broken one, and to tie them together with handkerchiefs to prevent motion. Pads of straw may also be useful. As a rule, persons with fractured limbs should not be subjected to the risk of injury from riding in wheeled vehicles, in which they may be obliged to sit up, particularly over a rough road.

When any part of the arm is broken, the least painful and injurious position is resting the forearm in a broad handkerchief slung from the neck with the elbow bent, and with a small pillow or pad between the arm and the side. In most instances, a person so injured will be able to walk with less pain than he would suffer from movement in a carriage. If the forearm only is injured, it should be placed in a sling.

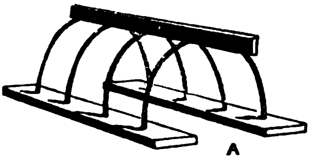
The surface on which the patient with a fractured limb has to lie during the treatment, should be firm and level, and therefore no feather or very soft bed should be allowed. It should also be recollected that the lighter and cooler the method of fixing the limb, the less unpleasant will it be to the patient. The irritation which arises when the part is thickly covered, and there is no escape for the perspiration, is often intolerable. It is also of great importance to be able to undo the apparatus easily, so as to see the state of the limb, and to keep it clean with soap and water.

In the *treatment* of fractured bones the following articles are required:—Splints, bandages, pads, tapes, sometimes oiled silk, and simple ointment. Splints may be made of wood, or, except for the thigh, of gutta percha, of telegraph wire, of thick pasteboard, of newspapers, of bandboxes, or even of strong straw tied into a bundle. Bandages should be made of linen or calico (*vide* p. 431), or of old sheeting. Pads may be formed of pieces of blanket cut into the shape of the splints, or of cotton wool, or tow, or of cocoa-nut fibre, chaff, or husks of grain in bags. When adjusting splints, much care must be taken that there is no great pressure on prominent parts, as the bones of the ankle or elbow; otherwise blisters and sores will form. This is to be effected by making the pads fit the contour of the limb, and they may be fitted on the limb of another person, or on the sound limb. Although frequent moving of splints when once applied to a fracture is not desirable, it is still necessary to secure cleanliness, and to ascertain whether any wound is forming from pressure, or whether blisters, as sometimes occurs, have formed from the violence of the injury. It will, therefore, be necessary to move the splints with great care about the third day, when the limb will be probably found, showing the discoloration described under *Bruise* (*vide* p. 449); and also presenting various blisters. These should be snipped at the most dependent part; the limb should be gently sponged and cleansed with warm water and carbolic soap; a little simple ointment (Recipe 86) spread on lint or soft rag should be laid over the blistered part; and if pressure has occurred, the pads and splints should be carefully re-adjusted, so as to avoid it. Similar attention will be required in another day or two. If all this is done with care, no motion of the fractured parts need be entailed.

If there is great swelling of the parts, or much bruising apparent at first, broken limbs should not be bound on splints for the first three or four days. If limbs in such a condition are bandaged up tightly, much pain results, and if the bandages are not slackened, serious injury or mortification may follow. It is best at first, if there is much swelling, to lay the broken limb in as comfortable a posture as possible, and as nearly as can be in its natural direction, and it may be lightly bound to a single splint merely for the purpose of keeping it steady. The arm, whether broken above or below the elbow, will lie most comfortably half bent on a pillow. The thigh or leg will rest most easily on the outer side, with the knee bent. It will always be proper to apply fomentation or lotion while swelling continues (*vide* p. 592). Speaking generally, all fractures should remain in splints during one month, after which sufficient support may be obtained by a starch bandage (Recipe 111), or by plaster spread on strips of leather (Recipe 112).

When it is necessary to fix a limb with *compound fracture* on a splint, the seat of the injury should, as far as possible, be left uncovered by the bandage. If it is requisite, a second bandage may be applied over the first one, to retain poultices, dressings, &c. In this way local treatment may be used, without disturbing the position of the limb, and the progress of the wound can be watched, without causing unnecessary pain or discomfort to the patient.

In treating all fractures of the lower limbs, and also sometimes for the arm, the use of a 'cradle' is necessary to keep the bedclothes from pressing on the injured parts. A 'cradle' may be constructed of some curved iron wires, passed through three slim pieces of wood as in figure A. Or one may be made as figure B, by cutting a barrel hoop in two or three pieces, and nailing them to two pieces of wood.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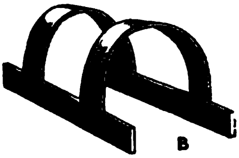
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The usual *symptoms* of all fractures are pain, swelling, alteration of shape, grating of the broken ends of the bone on movement, and more or less inability to move the limb. But sometimes, particularly in children, bones are bent, not broken, when, although there will be no grating, the deformity or bent shape of the limb will sufficiently indicate the injury. For the signs distinguishing fracture from dislocation, *vide Dislocation*, p. 462.

FRACTURE OF THE SKULL.—If it be a simple fracture, or crack in the bones of the skull, nothing more will be proper or required, beyond attention to the external wound, as mentioned under *Wounds of the Scalp* (*vide* p. 540.) Such injuries are, however, generally attended by the condition described as *concussion* (*vide* p. 457), and this state, if present, must be treated as mentioned under that head. If any portion of the bones of the skull is broken and *depressed* below the other part, the symptoms described under the head *Compression of the Brain* (*vide* p. 461), such as insensibility, heavy laboured breathing, and perhaps dilated pupils, will be present; and the operation of trepanning will probably be required. When, after an injury to the head, there is bleeding or escape of watery fluid from the ears, or from the nose, in addition to insensibility and laboured breathing, fracture of the base of the skull has probably taken place, and the case generally ends fatally. In all injuries of the head there is special danger of inflammation of the brain, and therefore perfect rest from the first should be insisted upon, with a darkened room, low diet, cold lotion to the head (Recipe 83), purgative medicines (Recipes 1 and 2), and abstinence from all stimulants.

FRACTURE OF THE SPINE.—Is generally the result of direct violence, consequent on accidents. The fracture is usually partial, and frequently associated with dislocation of one bone, or of part of one bone of the spine, from the next. The symptoms are partly *local*, such as belong to all fractures, and partly *nervous*, depending on the nature and amount of injury which the spinal marrow (situated inside the bones of the spine) has sustained. The *local* symptoms are pain, loss of power, and irregularity in the course of the spine at the seat of injury. Sometimes the bones of the spine, which are felt as a succession of hard prominences in the back, are found to be unnaturally separated at the injured place, or one or more of the bones may be felt to be depressed *beneath the level* of those above and below. If the spinal marrow is so far compressed or lacerated that its functions are interfered with, there will be either partial or entire loss of both motion and sensation *below* the point of injury. If the fracture is situated about the loins, the lower part of the body, the bladder, the rectum, and the lower limbs will be paralysed, the person being unable to move, or to make water, or to pass motions at will. In this case the arms and upper part of the body remain unaffected. In this state the patient may live for months, or even years, death eventually taking place from exhaustion, caused by bed sores (*vide* p. 63), or from disease of the bladder (*vide* p. 65).

If the injury is higher up, about the shoulder blades, the muscles of the chest will be also paralysed, and breathing will be carried on with difficulty. Under such circumstances the patient may live a few days, but the lungs soon become congested, and the person dies suffocated.

If the injury is still higher, or at the lower part of the neck, the arms are also paralysed.

In all these melancholy cases the intellect remains clear and unaffected almost to the last.

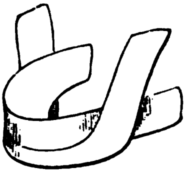
If the injury is still higher up, about the upper part of the neck (above the origin of a nerve called the *phrenic*), death takes place instantly from cessation of respiration. Such cases are popularly talked of as 'broken neck.'

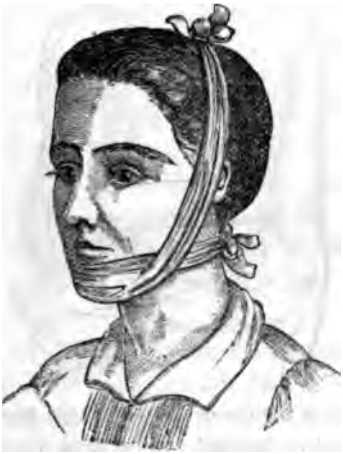
Treatment.—When the injury is in the lowest part of the back, much may be done to make the person more comfortable, and to prolong life. The sufferer should be placed, if possible, on a water bed, and kept perfectly clean. The tendency to the formation of bed sores (*vide* p. 63) about the buttocks and back from pressure, and about the privates from irritation by urine, or by fæces dribbling away, should be held in mind, and the parts should be protected by variously shaped pillows, and by suitable coverings of oiled silk. As the person cannot make water, the urine accumulates in the bladder, until that organ, being filled to distension, it dribbles away; but the bladder remaining always full, the urine contained therein becomes offensive, ammoniacal, and doubly irritant to the inside of the bladder, and to the skin which it may run over outside. From the first, therefore, the urine should be drawn off with the catheter twice a day, and if a surgeon and the necessary instruments are at hand the bladder will probably be also washed out daily. No medicine, except an occasional purgative, such as castor oil, will be required. But the rectum should be washed out every three or four days by an enema of soap and water (Recipe 104). When the injury is higher than the loins very little can be done to alleviate the sufferings of the patient, and no medicine is of any use.

FRACTURE OF THE BONES OF THE NOSE.—This is known by the disfigurement, the nose being flattened, and by the grating of the broken bones when the nose is raised to its natural position by the fingers. The bones should be pushed into their proper place by passing a pair of forceps or piece of wood into the nostrils, and lifting up the fractured parts. If they do not remain *in situ*, a plug of lint must be placed in the nostril. If the fracture is compound, that is, presenting an external wound, and any splinters of bone are loose, they should be removed with the forceps. Bleeding, if violent and protracted, must be stopped, as mentioned in the paragraph on *Bleeding from the Nose* (p. 446).

FRACTURE OF THE LOWER JAW.—This injury usually occurs at about the middle of one side of the part in which the teeth are placed, and is known by pain, swelling, inability to move the jaw properly, and irregularity of the teeth; the anterior or front teeth being drawn *down*, and the back teeth *up*, by the action of the muscles. The point of fracture may be easily felt, and the saliva dribbles from the mouth. On moving the jaw grating will be felt. If the fracture is compound, there will also be bleeding, from laceration of the gums, and probably one or more teeth may be knocked out or loosened.

Treatment.—If teeth are only loosened they should be left, and may perhaps be secured in their places by silver wire, passing round adjacent teeth. If teeth, or fragments of bone, are wholly detached, they had better be removed. Then, the teeth should be brought into the natural line, and a piece of cork an inch and a half long, half an inch wide, and half an inch thick, should be placed between the back teeth on each side. Then a piece of gutta percha, or thick pasteboard softened by hot water, should be accurately fitted to the jaw (previously shaved, if necessary), and extending from ear to ear. The gutta percha should be about eight inches long, and should be split up the middle from each end to within an inch of the centre. When applied, the lower portion should be doubled on the upper, by which means there is a double support at the part most requiring it. The gutta percha must be secured by a four-tailed bandage, made by taking a yard and a half of calico roller, about four inches wide, tearing each end longitudinally, so as to leave about eight inches in the middle, in which should be a slit for the reception of the chin. This slit should be about an inch from the anterior margin, so that the latter may not rise so high as to cover the lower lip, or get into the mouth. Two of the tails are then tied over the crown of the head, and two at the back of the neck; or the latter may be crossed and brought round and tied in front. The bandage may be rendered more secure by a circular one round the head above the ears, the two being secured by pins where they cross. The mouth is thus closed, and the patient must be fed entirely on fluids for the first fortnight. The cure occupies about five weeks. Below is a sketch showing the bandage placed in position.

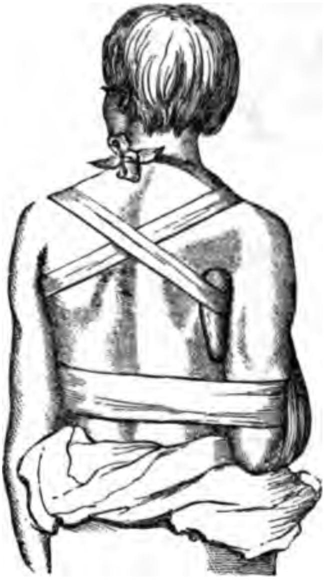




During the first weeks, dribbling of saliva, and fœtid taste in the mouth, are a great nuisance to the patient. Frequently washing the mouth with carbolic solution (Recipe 117), or with myrrh gargle, is desirable.

FRACTURE OF THE COLLAR-BONE.—This is generally caused by falls on the arm or shoulder. The person cannot raise the arm upwards towards the head; the broken part of the bone may be seen and felt prominent; grating of the broken ends occurs on movement of the shoulder; the shoulder is flatter than the other, and falls forwards and inwards; the person supports his elbow and forearm with the opposite hand and forearm. This accident frequently occurs to children.

Treatment.—Place a big cone-shaped pad in the armpit, then bandage the shoulders so as to draw them backwards.



This is effected by a figure of ∞ bandage, passing round each shoulder and crossing behind. The arm must be then bound to the side by another bandage, and lastly, the elbow must be supported by a handkerchief, used as a sling round the neck. Thus the shoulder is kept *up* by the sling, *out* by the pad, and *back* by the bandage, bringing the broken ends of the collar-bone into position. When the bandages are adjusted, they should be pinned or stitched in several places, as they are very liable to slip. They should also be tightened when they grow loose. They should be worn a month, after which plaster on strips of leather (Recipe 112) may be applied over the injured part. The preceding diagram represents a broken collar-bone bandaged.

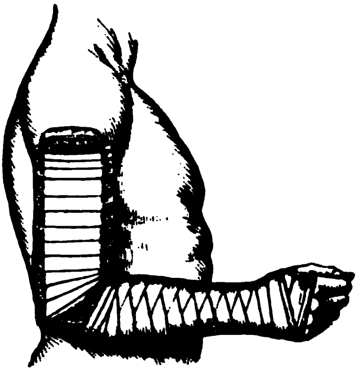
It is a very difficult matter to keep this bone, when broken, at perfect rest and in exact position, unless the patient lies in bed on his back, with his arms confined to the side of the body, and keeps his head quite still. But such a position maintained for days, for such an injury, would be to most people intolerable. With the bandages, as above described, a broken collar-bone unites speedily and strongly, although some little deformity must be expected.

FRACTURE OF THE ARM-BONE OR HUMERUS.—This may be broken at or near the upper portion, or in the centre, or nearer the elbow. In the first case the arm is slightly shortened, and the broken *end* of the bone may be felt in the front of the armpit, while the round *head* of the bone is felt in its right place, and the shoulder, when compared with the other, will be seen to have lost its rounded form. Grating will also be felt when the elbow is pulled downwards, so as to restore the broken parts to their natural position.

FRACTURE OF THE MIDDLE OF THE ARM-BONE is more easily detected from the deformity, the grating, and the inability to use the arm.

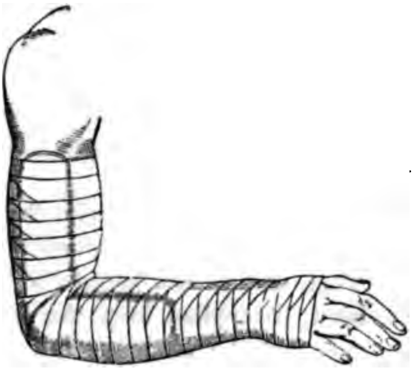
FRACTURE OF THE LOWER PART OF THE ARM will be known by the elbow being drawn backwards, by its being restored to the natural position by pulling the hand, and by the grating.

Treatment.—When these fractures occur in the neighbourhood of the shoulder, or elbow joints, there is often so much swelling, that it is advisable to put the patient to bed, and to use fomentations for a few days until the swelling subsides, before applying splints. Then, or at first, if there is no swelling, *in fracture of the upper part, or middle of the forearm,* the limb must be first restored to the natural position by pulling or extension of the elbow. Then four carefully padded splints should be placed, one in front, one behind, and one at each side. These splints must be long enough to reach from the top to the bottom of the arm, and the *outside* one should be the longest, as it should rest above on the shoulder, and below on the outside of the elbow. Great care must be taken that this splint does not press too much on the prominence of the elbow—to be avoided by well padding opposite the hollow of the arm *above* the elbow. The skin of the armpit and the inside of the elbow is also liable to be frayed by the inside splint, which must be avoided by care and padding. Similarly the skin of the forearm may be blistered by the lower end of the front splint. The splints, when properly adjusted, must be secured by tapes tied round at the top and the bottom.



Then, a bandage may be applied, commencing from the hand, passing over the forearm, and then over the splints. This prevents swelling of the hand and forearm. Lastly, the *wrist and hand* should be comfortably supported by a sling, but the *elbow* should be allowed to hang down, its weight tending then to prevent the lower part of the bone being dragged upwards by muscular action. The arm thus bandaged is represented on the preceding page.

In fracture of the lower part of the arm the elbow should be bent, the parts brought into proper position, and an angular splint made of gutta percha, or leather softened in warm water applied on each side. The hand and forearm must be bandaged, and the elbow and forearm supported by a sling from the neck. The part thus bandaged is figured below.



Various other Injuries affecting the Shoulder Joint occur presenting symptoms very similar to fracture of the head of the arm-bone. But these are often difficult of detection even to the skilled surgeon. In any case of doubt, it will be well to apply the crossed bandage as for fractured clavicle, and to keep the arm to the side, until the advice of a surgeon can be obtained.

Similarly there are other Injuries of the Elbow Joint, presenting many of the symptoms of fracture of the lower part of the arm-bone. The precise nature of these is also very difficult of detection; but in most cases keeping the arm *bent at right angles*, resting on an angular splint, will be the best plan, until the arrival of skilled aid.

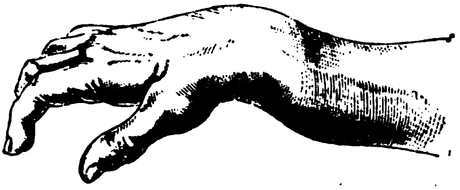
There is, however, one exception, viz. when the *end* of the large bone (ulna) of the arm, forming the tip or *prominence of the elbow* is broken off. This is usually the result of direct injury. In such cases the broken end of the bone will be felt detached from the body of the bone, and the person is *unable to straighten* the arm. This injury should be treated by placing the arm *straight*. A well-padded splint, long enough to reach from the middle of the forearm to the middle of the arm, should be placed on the front of the elbow, and secured by a bandage. The limb should be kept up on a pillow, otherwise the hand will swell.

FRACTURE OF THE FOREARM.—The two bones of the forearm may be both fractured in any part of their course, or only one may be broken. There will be pain, grating on movement, and the arm will be misshapen; the more so if both bones are broken.

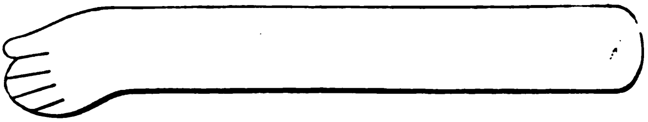
Treatment.—One person should hold the elbow and another pull the hand, keeping the thumb of the injured limb upwards. Then well-padded splints, a little broader than the arm, must be applied from the fingers to the elbow on each side, and the whole secured by tapes and bandages.

In Children the Forearm is often Bent, rather than quite broken. In such cases it must be forcibly straightened, during which grating will be felt, and then splints are to be applied. This injury is also called 'green stick' fracture.

FRACTURE OF THE FOREARM CLOSE TO THE WRIST.—This is an injury from which recovery is tedious and troublesome. The limb is peculiarly bent, as in the accompanying sketch, and there is generally much swelling, while grating is felt on extension of the hand. The lower fragment of the broken bone forms a marked projection at the back of the limb, and leaves in front just above the line of the wrist joint a corresponding depression.



Treatment.—The thumb must be placed upwards, the elbow steadied, and the hand pulled until the natural position is restored. Splints should be applied, the inner one extending from the elbow to the palm of the hand, the outer one curved as in the accompanying diagram, and extending to



the ends of the fingers. This position of the hand brings the fractured parts into better contact, when it should be secured by tapes and bandages round the splints. In this particular injury occurring to a young person, or up to thirty years of age, the splints should not be used more than three weeks, nor more than four weeks for an older person; after which the wrist should be gently moved daily, otherwise the joint is liable to become stiff.

Other injuries about the Wrist Joint occur, more difficult of detection, involving often both the small bones of the joint, and the ends of the bones of the forearm. But in the absence of special surgical skill, they cannot be accurately distinguished, and in all cases where there is doubt it is best to treat the case as for fracture of the middle of the forearm.

FRACTURE OF THE BONES OF THE HAND AND OF THE FINGERS.—These injuries are known by the attendant swelling, pain, and grating.

The best method of treating fractures of the bones of the hand, is by laying the extended hand on a wooden or gutta percha splint, cut to the shape of the part. It should be borne in mind that the *inner* or palmar surfaces of the bones of the hands are *concave*, and the splint should therefore be well padded, so that it may adapt itself to their form. Sometimes, in order to maintain the broken parts in better contact, a small splint is desirable on the back of the hand. Then, a bandage should be applied so as to keep the hand and fingers immovable. In some instances, the broken bones are brought into more natural position when the hand is closed. If this is found to be the case, the injury may be treated by causing the patient to grasp a ball of tow, or other soft substance, about half the size of a cricket ball, or so large as to permit the thumb and fingers meeting within an inch. The closed hand with the ball of tow inside, should then be secured in such position by a bandage. The hand should be kept bound for about three weeks.

When a bone of the finger is broken, it may be treated by binding the finger to a narrow splint of wood or gutta percha. But if the injury is very severe, or several fingers are involved, it will be needful to lay the whole hand on a wooden splint cut to the shape of the thumb and fingers. As in fracture of the bones of the hand it should be recollected that the inner surfaces of the bones of the fingers are also concave, and the splints should therefore be well padded. In all cases of fracture of the bones of the hands or fingers, the limb should be supported by a sling, so disposed as to raise the hand a little above the level of the elbow.

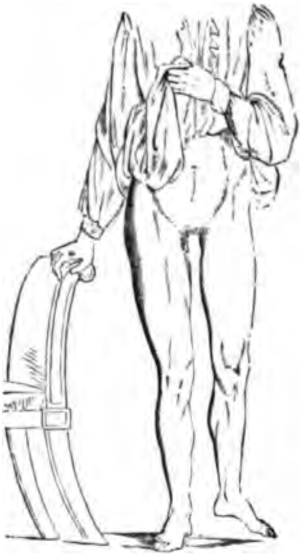
FRACTURE OF THE RIBS.—The ribs are liable to be broken by falls or blows, or by a crushing weight, as from a wheel passing over the chest. When the injury results from direct violence, the rib is generally broken at the seat of injury; when from crushing or squeezing, it breaks at the bend, or middle of the bone. The patient complains of severe pain on drawing a deep breath, and there is also a grating sensation in the side, evident to the patient, and which may be felt on applying the hand flat over the part, unless the patient is very stout. If the fracture is near the spine, or the patient corpulent, detection will be more difficult. But if, after a blow, squeeze, or other injury to the chest, cutting pain is complained of, the treatment for fractured rib should be pursued. The principal danger to be apprehended from fractured rib is, lest the lung or its covering (the *pleura*) may be injured, and become inflamed.

Treatment.—Diminish motion of the chest, by passing a broad roller, eight inches in width, and about twelve feet long, tightly round the body, from the pit of the stomach to the armpit. The bandage will require shoulder straps to maintain it in position. The patient should be kept in bed, and if cough occurs Recipe 31 should be given. The bowels must also be kept open (Recipes 1 and 2). Bleeding may sometimes be required if inflammation sets in, known by increased pain, difficulty of breathing and cough, with febrile symptoms, as quick pulse and hot skin. If all goes on well, the bandage should be worn for three weeks, after which leather plaster may be applied over the seat of injury. Pleurisy, or inflamed lung, caused by fractured ribs, should be treated as advised for such ailments (*vide* pp. 283, 304).

Emphysema, or Air Entering Beneath the Skin.—This condition sometimes results from the fractured ends of the ribs wounding the lungs. Emphysema forms a soft puffy swelling of the skin, which crackles when pressed. For this complication, a pad of lint should be first placed over the seat of injury, and the bandage should be tightly applied over the pad. In such cases the necessity for perfect rest must be more especially enjoined; for the occurrence of *pleurisy*, or of *inflammation of the lungs*, is more likely.

FRACTURES OF THE FEMUR, OR THIGH-BONE.—These, like fractures of the arm-bone, are divisible into injuries of the upper part or head, of the middle or shaft, and of the lower portion.

FRACTURES OF THE UPPER PART OF THE THIGH are marked by inability to stand, shortening of the leg, and turning out of the toes, the heel of the injured limb pointing to the instep of the sound member, as shown in the sketch below. If the foot is drawn down to its proper length, and turned about, while a hand is placed on the hip, grating will be felt. This accident frequently happens to old people. The following figure may be usefully compared with the drawing representing the aspect of the limb in dislocation



of the same bone, when the different appearance will be at once recognised. (*Vide* p. 470).

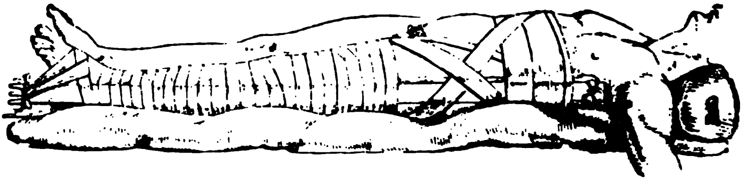
Treatment.—Unless the person is old and feeble, the limb should be bandaged, as detailed below for fracture of the middle of the thigh. If the patient is old and feeble, health would be sacrificed, and probably bed sores formed by long confinement in bed, under the treatment by splints. The patient should be kept in bed for a fortnight, with one pillow under the whole length of the limb, and another rolled up under the knee. When pain and tenderness abate, which will be ordinarily in about a fortnight, the patient may be allowed to sit in a chair, and to use crutches. What is called 'ligamentous union' will take place, and although the leg will be shorter than before, it will be fairly useful, and the shortening may be remedied by a thick-soled shoe. This 'ligamentous union,' it should be explained, consists in the junction of the broken ends of the bone by a tough leather-like substance, but not by bony matter.

FRACTURE OF THE MIDDLE OF THE THIGH.—This accident is readily distinguished by shortening of the limb, by great swelling, and by grating when the ends of the bones are placed in contact by extension, or pulling from the foot; which also restores the natural shape of the limb.

In young children, this fracture is often incomplete, the bone being only bent. In such cases, there is no grating, and pulling the foot does not restore the natural shape of the thigh, which must be bent back with the hands into position, much in the same way as a stick would be bent.

Treatment.—For all cases of this kind, and for fractures of the upper part of the bone, up to fifty years of age, the long thigh-splint must be used. This is a narrow board of a hand's breadth for an adult, but narrower and slighter for

a younger person. It must be long enough to reach from just below the armpit to four inches below the sole of the foot. At the upper end must be a hole, at the lower end two deep notches with a hollow or hole just above for the reception of the ankle bone. First the splint must be thoroughly padded, with layers of blanket or otherwise. Then the limb should be evenly bandaged from the toes up to the knee, and then gently extended to its proper length and shape by pulling the foot. Next, the lower end of the splint is to be fixed to the ankle, by passing a bandage round the foot, and through the notches of the board. Next the splint is secured to the limb by a bandage passing upwards. During all this time an assistant must keep the limb in proper position by pulling the foot. Lastly, this extension must be maintained by 'the perinæal band.' This band is formed of a large handkerchief or piece of silk, doubled cornerwise, and rolled round a long thin pad. This is placed between the legs, one end passing over the groin, the other under the buttock, and the ends are tied through the holes at the top of the splint. This mechanically pushes the foot down, and so keeps up the extension. A roll of broad bandage should also be passed round the body and upper part



of the splint, to keep the latter close to the person. The perinæal band is likely to gall, and constant attention must therefore be directed to this part; particular care being taken that it does not press on the privates, or become wet with urine. And as considerable pressure is exerted on the ankle, padding and manipulation are necessary at this part to prevent blisters or sores forming. It is also sometimes necessary to apply short splints, both on the inner side and on the front of the thigh, when the bones have a tendency to project in either direction. The figure on the opposite page shows a thigh thus bandaged to the long splint.

It very often happens, however, that the bandage round the foot, notwithstanding careful padding, causes irritation, pain, or blisters from the pressure, which, when the band between the legs is drawn tight, is very considerable. Or the perinæal band may cause soreness between the legs. Under such circumstances it may be necessary to continue the treatment without these aids, and this may be effected in the following manner. A fixed point, in the shape of a foot-piece, must be attached firmly to the foot of the bed, so that the sole of the foot of the injured limb may rest against it as the patient lies on his back. Then several long broad strips of plaster must be carried from the seat of fracture on the one side, round the foot-piece, to the same point on the opposite side. By this means the pressure and extending force will be so diffused that the person will be scarcely sensible of it. But something is still wanting as the extending force, in place of the perinæal band. And this difficulty is to be overcome by tilting up the lower end of the bed about twelve inches from the floor, and placing blocks of wood below the feet. The patient then lies on an inclined plane, and the body having a tendency to slip towards the head of the bed, while the foot is fixed by the plasters to the immovable foot-board, the desired extension is thus maintained at the seat of the fracture; the body itself being the counter-extending force. As a further precaution, small splints should be applied round the thigh at the point of fracture.

The best method of applying the foot-board is to procure a piece of wood, about half an inch thick, as broad as the sole of the foot, and in length sufficient to reach from the floor when the bed is tilted to the extremities of the toes of the patient as he lies with the heel downwards. The upper portion should be cut into the shape of a foot-piece, and the board should then be firmly screwed to the cross-piece of the bed. A little adjustment by cutting the latter, or the foot-piece, or by inserting a wedge between the two where they meet, will be necessary, in order that the upper part of the board to which the sole of the foot is bound may be perpendicular, and not participate in the tilt of the bed. To render it still more firm, a nail may be driven in the floor, in front of the lower end of the foot-board.

When an accident of the kind happens away from home, a gun, or rifle, or any long stick, wrapped in clothing, may be used as a temporary splint.

After any variety of fracture of the thigh it often occurs that the bladder is temporarily paralysed, and the person cannot make water. The passage of water should therefore always be enquired about, a few hours after an injury of the kind. If no water has been passed the bowels should be fomented (*vide* p. 591), and if this does not succeed the catheter must be passed (*vide* p. 430).

However a fractured thigh is treated, the patient must remain in bed for five or six weeks, and must then go about on crutches, not putting his foot to the ground for another two or three weeks. In almost all cases some shortening of the limb occurs; and occasionally this is not apparent until the patient begins to walk.

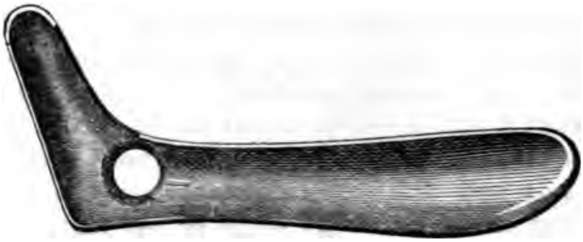
FRACTURE OF THE KNEE-PAN.—This generally results from spasmodic muscular action, as occurs from missing a step in coming downstairs. A sharp pain is experienced, accompanied by an often audible crack or snap. The person falls, and cannot stand. The knee cannot be straightened, and a hollow, or chink, is found between the broken parts, a little above the knee.

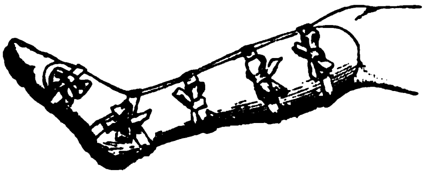
Treatment.—The patient must be put to bed, and the limb extended on a light well-padded wooden splint or board reaching from the buttock to the heel, and having a hole at the end to receive the latter part, and a small piece, projecting at right angles from the end, to receive the sole of the foot. The heel end of the splint should then be raised about a foot and a half, which has the effect of relaxing the muscles, and so allows the broken parts to come into contact. Or the leg may be laid flat, the body of the patient being propped by a slanting board or bed-rest, in the semi-recumbent posture, which has a similar effect on the muscles. Or when one position becomes irksome, it may be exchanged for the other; or one may be maintained during the day, and the other at night, care being taken not to *lessen the angle* at the hip when changing posture, so that the muscles may be constantly relaxed. This may be readily accomplished by raising the body before lowering the foot, or by raising the foot before lowering the body. In some cases the broken parts of the knee-cap cannot be brought into satisfactory contact, until both the heel is raised as above, and also the body propped in the semi-recumbent posture. Whatever position is chosen, if there is much swelling and bruising, fomentation should be first used. Afterwards a bandage should be applied round the knee in the form of the figure of ∞, which will have the effect of bringing and retaining the broken parts together. A month at least should elapse before the patient attempts to move the knee. All movement should be made very carefully and gradually, as the union between the broken ends does not take place by bone but by the formation of a ligament, which may afterwards stretch. The person should go about on crutches, and wear an elastic knee-cap for some months. There is, notwithstanding all care, frequently permanent limping after this accident.

FRACTURE OF THE LEG.—This accident may occur in any part of the leg, and one or both bones may be broken. When both bones are broken, the fracture may be generally easily detected, by running the fingers down the shin, when an irregularity or prominence will be felt at the fractured part. There is also swelling, grating when the limb is moved, deformity, and when both bones are broken inability to stand. Sometimes after this accident the displacement of the bones may be masked, and the presence of fracture rendered doubtful by great swelling of the soft parts. In such a condition the movement necessary for a satisfactory examination is very painful to the patient.

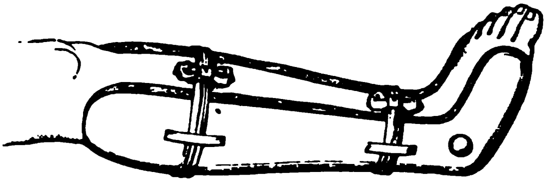
Treatment.—When, as last mentioned, there is great swelling, and the existence of fracture is not to be ascertained without subjecting the patient to great suffering, the limb should be as nearly as possible brought into a natural position, and then gently placed on a well-padded splint, or on a pillow to which it may be lightly tied by broad tapes. The person should lie on the side, so that the leg may be placed with the knee bent on its outer side. Then the limb should be well fomented for several days, or until the swelling subsides, when the broken bones, if not already in place, may be properly adjusted, or 'set,' and splints applied, as advised below. When this fomentation is desirable, or, indeed, when wet applications are ever used, it will be necessary to prevent saturation of the bed by placing an india-rubber sheet, or some oiled silk, or waxed cloth, under the part affected.

There are *two* positions in which a patient with fracture of the leg may be placed, viz. on the side as above described, or on the back. Sometimes the nature of the fracture decides this point, the bones coming into better contact in one position than in the other. The position, however, may be ordinarily determined by the wish of the patient, some persons lying and sleeping more comfortably on the side, others on the back. If it be determined to place the patient on the side, splints should be first prepared wide enough to rather overlap the leg, and provided with foot-pieces. If wooden splints in the shape of the diagram are not available, they may be made of thick pasteboard, or of gutta percha, or they may be cut out of tin. The two first-named materials should be soaked in nearly boiling water, and moulded to the shape of the leg, by placing them for a short time on the corresponding leg of another person of about the same height. Then the splints should be well padded with cotton wool, sewed in calico bags of the same shape as the splints. When all is ready, the knee of the patient should be fixed by an assistant holding it firmly with both hands, and the broken ends of the bone should be brought into position by steadily but gently pulling the foot. When under this operation the leg assumes the natural shape, the outer side should be gently laid upon one splint, and the other splint should be placed on the inner side; the whole to be secured by loops of tape as shown in the figure. The leg being laid on its *outer* side, the knots must be tied on the *inner* side, and care must be taken that they are not, especially at first, drawn too tight, as the injured part will probably swell for a few days. These loops or knots are more





easily loosened and tightened than a bandage, and further allow of the splint on the inner or upper side being lifted off, and the leg examined without disturbing the whole limb. After eighteen days or three weeks, if all swelling has disappeared, and the fractured part is firm, a starch bandage (Recipe 111) may be applied, and should be worn for a fortnight, after which it will be well to support the parts with plaster (Recipe 112) and a bandage for a week or two longer. The person may walk with crutches after the starch bandage is dry, being careful to rest no weight on the limb, until at least a month after the accident. If the patient is to be placed on the back, the limb must be brought into its natural position by extension of the foot as above described. Then well-padded splints, either with or without foot-pieces (the former preferable), reaching from knee to ankle, must be applied on each side, secured with tapes, and (if necessary) a bandage. The person should be placed in bed, and the limb



with the heel downwards, a small pillow being adjusted *under the hollow* of the ankle, to prevent the heel bearing the whole weight of the leg. Then two bricks wrapped in cloth, or bags of sand, should be placed on each side for the purpose of steadying the limb, and preventing it rolling round. After about three weeks, a starch bandage or leather plaster may be applied.

FRACTURE OF THE LEG IMMEDIATELY ABOVE THE ANKLE.—This accident demands special notice. One or both bones may be broken. In the second case the position of the foot is as sketched on the opposite page. But often only the small bone (the one on the outside) is broken, when the deformity will not be so evident, and the swelling will be chiefly on the one side.

Fractures of this description should be treated with two splints, the patient lying either on the back or on the side, as for fracture of the upper part of the leg.

In treating cases of fracture of the small bone of the leg, or any injury near the ankle-joint, splints ought not to be used for more than a month or five weeks for fear of stiff joint. At the end of that time the joint should be slightly moved daily, in order to secure mobility.

Caution.—In all kinds of fracture of the leg when the case is treated by laying the person on the back, the great toe must be kept *in a line with the inner margin of the knee-cap*; otherwise deformity will ensue.

FRACTURES OF THE FOOT.—These injuries are difficult to detect, and generally do not require splints in their treatment, placing the part as nearly as possible in the natural *position*, rest, fomentations, and lotions being the proper remedies. Fractures of the bones of the foot generally occur from great violence: the soft parts are frequently also much injured, and such cases will probably necessitate surgical advice.

Torn or Cut Tendo Achillis.—The large thick tendon thus called, which connects the heels with the great muscles forming the calf of the leg, and which are the main instruments in keeping the lower limbs erect and straight when we stand, and in throwing the body forward when we walk, is liable to be torn or cut. It may be torn or ruptured in making a false step in walking or running, or in coming downstairs, or when dancing. The tendon tears without warning, and the person drops to the ground with the sensation of a smart blow on the part. On attempting to rise he finds himself unable to rest the least weight on the foot.

Treatment.—This consists in putting the patient to bed, and laying the leg on the outside with the knee much bent, and the toes much pointed, by which position the torn ends of the tendon are brought as nearly as possible together. This posture must be preserved for a fortnight, to give time for the production of the new substance by which the tendon is repaired. To secure this position it will be necessary to bind a piece of thin board, about four fingers wide, extending from below the knee-cap to beyond the toes, upon the front of the leg, taking care to have the board well padded so that it may not rub.

The board must be confined by a few turns of bandage above and below the calf. No bandage must be put on where the tendon is torn, a spot easily found before the foot is extended, by the gap into which the finger drops in passing it from the heel up to the leg towards the calf. After a fortnight or a little longer this gap may be felt filled up with a firm substance. The person may then get up, the leg be straightened gradually, and a shoe with a very high heel worn, which may be gradually cut down, till in some months' time the leg may be quite straightened.

When the 'Achilles tendon' is cut, which may happen from the blow of a scythe or sickle, or sword, the case is more serious. The person is in the same condition as a beast which is 'houghed,' and cannot stand. When after this accident the wound has been brought together, by placing the limb in the position above described, the edges of the loose skin drop into the wound, so as to interfere with union. It is therefore generally necessary to nip up both edges of the cut skin, so as to make their *under* surfaces touch, then passing a needle and suture to keep them in such position. The limb must then be 'put up,' as described for simple rupture, and the stitches may be taken out on the third or fourth day. The wound should also be protected by plaster cut into long narrow strips, and applied *lengthwise* on the leg.

CRUTCHES.—When a patient begins to move about after any severe accident or injury involving the lower extremity, he has generally to use crutches. The crutches should be just long enough to enable him to raise the injured leg off the ground while he stands firmly on the other. The cross-bar should be oval-shaped and well padded, otherwise the pressure may lead to strain of the nerves of the arm. The ends of the crutch should be tipped with leather or cloth to prevent them slipping.

If the state of the injured limb is such that the patient ought not to use it at all, it is a good plan to support it with a bandage passed under the foot, the ends being brought up evenly in front and tied behind the neck. In this way a sort of sling is made, which assists the patient in keeping his foot from the ground.

GANGLION.—This is the term applied to a swelling of the membrane enclosing the tendons of the wrist. It generally appears gradually, but it may arise suddenly, after a strain or twist of the part. Similar swellings also sometimes appear from blows or other injury, on the back of the hand, on the tip of the elbow-joint, on the side of the knee, and on the knee-cap. These formations should be first fomented and the part rested in order to prevent inflammation. Then, when the part becomes free from tenderness, if on the wrist or back of the hand, the swelling may be burst by pressure with the thumbs, or by a blow with an unbound book. Then a pad and bandage should be worn for some weeks to prevent re-formation. If on other parts of the body, blisters and other surgical treatment will probably be required.

HANGING.—When a person is hung by a cord round the neck, life may be destroyed at once if the body falls any considerable distance, by dislocation of the neck bones. If the force of the fall does not cause this, the pressure of the rope on the blood-vessels of the neck, preventing the flow of blood, may cause rupture of some vessel in the brain, when the person dies as from apoplexy. Such cases, especially the first, are generally immediately fatal. Thirdly, the hanging person may die more slowly from pressure of the cord on the windpipe, which produces suffocation. If this occurs (and it mostly depends on the position of the cord, whether death takes place in this manner or by apoplexy) and the body be soon cut down, the person may possibly be revived by the following measures, or 'Artificial respiration.'

Close the mouth and one nostril, and introduce a pipe of some kind into the other nostril. Then blow gently through the pipe, pressing at the same time on the prominence of the throat, which prevents the air passing down the gullet into the stomach. Or, if at hand, a pair of bellows may be used, the nozzle being inserted into one nostril. After blowing for nearly half a minute, press the abdomen, by which means the air is forced out of the lungs; and then repeat the process about three times in the minute. Cold water should also be dashed on the face, and if the face is very red, bleeding from the jugular vein will be advisable. The method of performing artificial respiration, as recommended (p. 476) for *drowning*, is not so well adapted for hanging: but it may be tried if artificial respiration as above recommended does not succeed.

KIDNEYS, INJURIES OF THE.—Injuries of the kidneys are generally produced by severe blows on the loins, or they may be caused by falling backwards. Great pain is at once felt, accompanied by faintness, sickness, and inability to walk erect. On passing water there is more or less blood with it, so that it is smoky in colour, or sometimes as dark as porter. There will be frequent calls to make water, and the pain will probably extend by the groin into the thigh. The blood is present because, as a result of the injury, some of the vessels of the kidney have been ruptured.

Treatment.—The patient should lie in bed, and keep perfectly quiet for some days, and both loins and bowels should be alternately fomented with hot water. The bowels should be kept moderately open by Recipes 1 and 2, and small doses of chloral (Recipe 75) may be given to relieve pain. The diet must be very plain and simple, and nothing must be taken likely to irritate the kidneys. Thirst may be allayed by iced milk and water; beef-tea, arrowroot, tea, and barley water may also be given. When the urine assumes a lighter colour it shows that less blood is being passed, and that an improvement is taking place; and this may occur at the end of a few days, or be delayed for weeks.

A very small quantity of blood in the urine causes this fluid to appear cloudy when looked through in a glass. But a better test is boiling a small quantity in a glass tube or silver spoon, when, if blood is present, a white precipitate of albumen will be formed. This is a simple test, and to insure thorough recovery, the patient ought to be kept to the house until all traces of albumen are gone. If exertion is made too soon, the bleeding is apt to recur, and the foundation of serious future mischief may be laid.

LIGHTNING STROKE.—A person struck by lightning is suddenly, more or less completely, deprived of consciousness. But this may be either from the effects of fright, or from the action of the electric fluid. If from fright, the condition is only transient, and quickly passes off, the person recovering as if from collapse, or shock (*vide* p. 454). Otherwise the shock is also attended by some degree of paralysis, most frequently of the lower limbs, which may last months. The lightning flash may also cause burns, sometimes of a deep and obstinate character, sometimes merely blistering, or redness of the surface. Occasionally arborescent marks are discovered on the body, appearing as if trees or other objects had been photographed on the skin. Other affections caused by lightning are, partial loss of sight, smell, speech, hearing, or taste, which may or may not be permanent. Usually, however, persons not killed on the spot, recover. The immediate treatment of persons struck by lightning, should be as recommended for *Collapse* (*vide* p. 454). Burns, or other injuries induced, must be treated as recommended under the respective heads. During a storm, a person is safer in the open, although a wetting may be experienced, than under trees, or in sheds, which may attract the lightning.

PRIVATE PARTS, INJURIES OF THE.—In the male, the testicles are liable to be injured by blows, or by the patient being thrown forward on the pommel of the saddle. The effect is swelling of the parts, accompanied by great pain and tenderness, with probably faintness immediately after the injury. At first a stimulant, as wine, or brandy and water, will probably be required. Afterwards fomentations and rest will in the great majority of cases effect a cure.

But it sometimes happens that a different kind of swelling forms after a blow on these parts. This variety of tumour is called *Hydrocele* (*vide* p. 264).

POISONING.—The principal poisons made use of in India are: *Arsenic*, *Opium*, *Dhatura*, *Aconite*, *Strychnine*, and *Indian Hemp*.

POISONING BY ARSENIC.—White arsenic is the preparation of the metal most frequently used as a poison, and is known in the bazaars under the names of *Sunkiah*, *Sumool Khar*, *Suffed Sumbhul*, *Phenashmabhasma*.

Symptoms.—These commence at variable periods, within half an hour or an hour of swallowing the poison. There is faintness, nausea, violent vomiting of brown matter streaked with blood, and a burning pain at the pit of the stomach, increased by pressure, and gradually extending over the whole of the bowels. This is followed by headache, diarrhœa, a feeling of constriction and heat in the throat, great thirst, and catching, painful respiration. Then the pulse becomes quick and feeble, there is great restlessness, and death usually occurs within twenty-four hours. In some instances there is less pain about the pit of the stomach, but more diarrhœa, accompanied by great straining, and heat and redness about the fundament. Occasionally also convulsions, or cramp of the legs, is a marked symptom.

Treatment.—The first object is to expel the poison from the stomach, for which the stomach-pump should be employed. If this instrument is not at hand, or cannot be used, the throat should be tickled with a feather, and emetics of sulphate of zinc or of mustard (Recipe 77) should be administered, accompanied by the whites of several eggs beat up in water, or equal parts of oil and water. If these are not available, copious draughts of milk should be given; or large quantities of magnesia, or powdered charcoal in draughts of water; whichever may be most readily procurable. Or, if possible, scrape a tablespoonful of rust from old iron, and let the patient drink it in water.

After poisoning by arsenic there is generally great depression of the system, and often inflammation of the stomach and bowels. Food consisting of broths or gruel must be given cautiously, and opiates (Recipes 75 or 76) to afford ease and sleep will probably be desirable.

The symptoms of *chronic* poisoning by repeated small doses of arsenic are, loss of appetite, thirst, nausea, occasional colicky pains in the bowels, diarrhœa, headache chiefly felt in the forehead, languor, soreness of the eyelids, itching and watering of the eyes, and emaciation.

POISONING BY OPIUM.—Solid opium, or a solution of opium in water, are the forms most used as poisons by Natives; tincture of opium or laudanum by Europeans.

The *symptoms* usually come on in about twenty minutes, commencing with giddiness, drowsiness, and stupor, followed by insensibility. The patient appears as if in a sound sleep, from which at first he may be roused by a loud noise, although he quickly sleeps again. As the poisoning progresses the breathing becomes slower, the pulse weak and feeble, and the countenance livid. The eyes are closed, the pupils contracted, often to the size of a pin's point, and there is total insensibility of the eyes to light. Vomiting sometimes occurs with slight reaction, but the state of stupor soon returns. Death is occasionally preceded by convulsions.

Treatment.—If a stomach-pump is at hand, and can be used, it should be employed. Otherwise the throat should be tickled with a feather, and emetics of mustard should be given (Recipe 77). After the stomach has been cleared out by emetics and by tickling the throat, give an ounce of the strongest black coffee which can be made every twenty minutes, until the pupils of the eyes begin to dilate. The patient should be kept from sleeping by dashing cold water on the face, by beating the palms of the hands, and by dragging or walking him about the room. If at hand shocks may be given with the galvanic or electric machine. Mustard poultices may also be applied over the heart, at the back of the neck, and to the calves. After the emetic no water should be given, as water tends to dissolve the opium, should any remain in the stomach. After the more urgent symptoms have passed away, some more strong coffee should be given, and the patient may be allowed to sleep for an hour. At a still later period if the patient is low, feeble, and restless, a little wine or brandy may be required; or if constipation supervenes, a dose of castor oil may be necessary.

Opium Poisoning in Children does not differ in its symptoms, when the dose is sufficiently large, from opium poisoning in the adult. But to keep children quiet the drug is frequently given by Native servants, and still more often by Native parents to their own children, in injurious, but not poisonous, doses. This may be suspected when a child, without appearing in pain, is dull, drowsy, with the pupils of the eyes contracted, and almost insensible to the light of a candle. When servants are suspected of giving opium, committing the child to some other care is the only course open.

If a child swallows a dose of opium, laudanum, or opium liniment, vomiting should be induced by tickling the throat with a feather, and as soon as possible a mustard emetic should be given. This should be composed of two teaspoonfuls of flour of mustard in a teacupful of warm water. Vomiting should be encouraged by inducing or forcing the child to swallow warm water, and the child should not be permitted to go to sleep.

POISONING BY DHATURA.—The dhatura plant grows in many parts of India, and is known in the bazaars under the terms of *Krishna Dhatura*, or *Kala Dhatura*. The seeds of the plant are generally used as the poison. They are small and kidney-shaped, about a quarter of an inch long, but of less width; the colour is greenish brown, the surface rough, and the outlines angular. This latter characteristic distinguishes them from capsicum seeds, which they much resemble, but which are rounded, instead of angular in outline like Dhatura seeds. The latter are used as poison after pounding, by mixture with rice, or coarse flour, or sweetmeats, or sometimes in infusion, or by smoking in a 'hookah.'

Symptoms.—The symptoms are first a giddy sensation in the head, ringing in the ears, dryness of throat, followed by loss of voluntary muscular action. The person tries to grasp at real or imaginary objects, appears timid and shrinking, commences to talk with great volubility, but breaks down in the middle of a sentence. He still makes abortive efforts to talk, straining the muscles of his face in a ridiculous manner, and often frothing at the mouth. Often he appears as if employed drawing out threads from the ends of his fingers. Sometimes he laughs at his extraordinary antics, sometimes he moans, sometimes he becomes furiously mad, and requires to be controlled by force. An order given in a loud voice is, however, generally sufficient to reduce him to obedience. The pupils of the eye gradually become *dilated*, while the pulse becomes slow and feeble. Then total loss of consciousness occurs, the person becoming insensible to pricks or pinches, while the pupil of the eye becomes still more dilated until it assumes the appearance of a mere ring. There is also foaming at the mouth, and previous to death, comatose breathing, as in apoplexy. When the patient recovers after the stage of insensibility, this condition is generally succeeded by a return of the delirium.

If the quantity of the poison taken has been small, a state of semi-unconsciousness may continue four or five days, when the symptoms gradually pass off, a peculiar confusion of ideas and loss of memory being among the last to depart.

Treatment.—First evacuate the contents of the stomach by an emetic of mustard and water, Recipe 77. If the stomach, as sometimes happens, has become so paralysed by the poison that the emetic produces no effect, efforts should be made to excite vomiting by tickling the throat with a feather. Cold water should be poured on the head and spine, and, if possible, ice should be applied to the latter part. After the action of the emetic has ceased, give half an ounce of castor oil, or place two drops of croton oil on the back of the tongue. Also administer chlorodyne, giving a first dose of thirty minims, and then ten minims every half-hour for four doses, or *until the pupils begin to contract.*

[If possible, tincture of opium (laudanum) should be substituted for the chlorodyne mentioned in the last paragraph, the first dose being twenty minims.

When the poisonous effects have gone so far as to render swallowing difficult or impossible, a solution of morphia may be injected beneath the skin, with the hypodermic injecting syringe, but the use of this instrument requires special instructions, or the aid of a medical man.]

POISONING BY ACONITE.—Aconite, or 'monkshood,' called also 'wolf's-bane,' and 'blue-rocket,' is a plant growing in many parts of India, the root of which is generally used as a poison. It is 'tap shaped,' blunt at one end and pointed at the other, two or three inches long, rough and dark brown on the outside, and when broken presenting a glistening blackish appearance. It is known in the bazaars under the names of *Metha Teelia*, *Bikh*, *Dakra*, or *Bish.* It is often used for the destruction of wild animals, and it is stated wells are sometimes poisoned by the bruised root being thrown into the water. Aconite in powder is also often mixed with prepared 'betel and paun' used by the Natives for chewing. A fatal mistake has been sometimes made, in eating the root of aconite for that of horse-radish, which it somewhat resembles; therefore the plants should never be allowed to grow together.

Symptoms.—When aconite is swallowed, either in substance, or as an infusion or powder, it produces tingling of the lips and tongue, a burning sensation in the throat and stomach, accompanied by numbness of those parts, and often also of the whole body. There is also frequently intolerable itching of the surface of the body generally, while the pupils of the eyes become dilated; but the dilatation is not so perfect as that caused by dhatura, there being a tendency to contraction when the eyes are exposed to a strong light. There is also spitting, hawking, retching, and vomiting, with frothing of the mouth. This latter symptom is more marked in aconite than in dhatura poisoning, as the numbness of the lips caused by aconite renders the parts insensible to the accumulated froth, or saliva, and there is, therefore, less spitting to get rid of it. After a variable period paralysis of the legs occurs, with insensibility to pain on pinching or pricking the part, but the power of moving the arms, and the sensibility of the upper part of the body, remain unimpaired. When aconite has been taken in poisonous doses, both the pulse and respiration are rendered slower than natural, the person gradually becomes insensible, and convulsions may precede death.

Treatment.—Stimulating emetics of mustard (Recipe 77) should be promptly given. After vomiting has occurred, very strong tea or coffee should be taken at intervals. If the breathing is difficult, a mustard poultice to the chest. If the pulse is low and the patient feeble, stimulants, as wine or brandy.

POISONING BY STRYCHNINE.—The *Strychnos nux vomica* grows in many parts of India, and is known as *koochla.* The seeds, also commonly called *koochla*, are generally used for criminal purposes. They are nearly circular in shape, and flat, about an inch in diameter, umbilicated, and slightly convex on one side; externally of an ash-grey colour, covered with short satiny hairs, internally translucent, tough, and horny. The taste is intensely bitter, but there is no odour. The bark is also sometimes used. It is found in twisted bits like dried horn, and is covered with white prominent spots. When pulverised it yields a light yellow powder. Either infusions of the seeds or bark, or the powders, may be used for criminal purposes, and the effects are due to the contained strychnine.

Symptoms.—In from a few minutes to an hour after taking the poison, the person complains of a feeling of suffocation, difficulty of breathing, and want of air. These feelings are soon followed by twitchings of the head and limbs, which shortly become convulsed, and the jaws may be firmly closed. The limbs are forcibly extended, the legs widely separated, and the feet often turned inwards or outwards. The head is thrown back, and the body is bent, so as to rest on the head and the heels. During the convulsions the face is livid, the eyes prominent, the pupils dilated, and the features drawn into a terrible grin, characteristic of such convulsions, and known as the *risus sardonicus*. After the spasms have lasted two or three minutes, there is a remission of short duration, and the patient lies exhausted and bathed in sweat, and the mouth may be opened. The fits return without any apparent cause, but sometimes appear to be brought on by efforts to drink, or by opening or shutting a door, by a gust of air, or by any kind of movement. The pulse is very rapid, and there is much pain at the pit of the stomach, and excruciating cramps in the limbs. In the intervals between the fits the person can converse, and often is able to swallow; during the fits he can do neither, and feels as if being suffocated. This occurs from the spasms preventing the chest expanding, and therefore the passage of air into the lungs cannot take place. When the case terminates fatally, the fits become more frequent, and the person dies, generally in two or three hours, partly from exhaustion and partly from suffocation. Poisoning by strychnine may be mistaken for *tetanus*. The distinctive features are noted at p. 386.

Treatment.—An emetic of mustard (Recipe 77) should be given immediately, and afterwards chloroform should be administered. Half a drachm of chloroform should be placed on a handkerchief, which should be held a couple of inches from the patient's mouth and nose. This may be repeated every ten minutes, or as often as the spasms return. A full dose of chloral should be given as soon as possible. Large quantities of powdered charcoal should also be given in water. If the patient cannot swallow, powdered charcoal in water should, if possible, be injected into the stomach by means of a stomach-pump.

POISONING BY INDIAN HEMP.—This is a plant growing in India, and known botanically as *Cannabis Indica*, or *Cannabis sativa*. The parts in common use for criminal purposes or for producing intoxication are, 1. *Churus*, a resinous exudation found on the flowers, leaves, and stalks of the plant, and looking like a piece of blackish wax, with faint odour. 2. *Ganjah*, the dried flowers and smaller leaves and stalks from which the resin has not been removed. The pieces have a dirty brown appearance, and the flowers are shrivelled at the end of the stalks. 3. *Bhang*, the dried larger leaves, much broken, and which have a greener appearance. 4. *Majoon*, a compound of *churus*, butter, sugar, flour, and milk, generally made in the form of small round cakes of a light yellow colour.

Of the above *churus* and *ganjah* are used for smoking, and an infusion is made from *bhang* for drinking. *Majoon* is eaten as a sweetmeat.

Symptoms.—These preparations of Indian hemp are generally used to stupefy, and thus favour the commission of crime, rather than with the view of causing death. A person under the influence of any preparation of Indian hemp, is very much as if under the operation of alcohol. There is first great excitement, the person often running about shouting; then come fits of laughing, alternating with intervals of stupidity. The latter become more frequent until there is total insensibility. The muscles during the stage of excitement are rigid, afterwards becoming flaccid, and the pupils gradually become contracted. The insensible condition may last an hour, or eight or ten hours, according to the amount taken.

Treatment.—If the person can swallow, a mustard emetic (Recipe 77) may be given. Cold water should also be applied to the head. But it is generally as well to let the person sleep the effects away.

The prominent symptoms caused by these Indian poisons are placed in contrast below.

Poisons.	*Prominent Symptoms.*
ARSENIC	Faintness, nausea, violent vomiting, purging, burning in the throat and stomach, thirst, cramp of legs, feeble pulse, cold skin.
OPIUM	Giddiness, drowsiness, stupor, succeeded by total insensibility and stertorous breathing, skin cold, face pallid, eyes closed, pupils contracted.
DHATURA	Headache, faintness, dimness of sight, giddiness, thirst, excitement, voluble talking, laughter, fatuity, dilated pupils, insensibility, stertorous breathing.
ACONITE	Numbness and tingling of the tongue and lips, burning of the throat, spitting, hawking, frothing at the mouth, vomiting, purging, pupils dilated, but contracting on exposure to strong light, delirium, stupor, paralysis, insensibility, convulsions.
STRYCHNINE	Feeling of suffocation, difficulty of breathing, twitching of the limbs, locked jaw, convulsions, the body being bent back, features drawn into a characteristic grin.
INDIAN HEMP	Appears like a drunken person, fits of laughing, alternating with intervals of stupidity, which gradually increase to insensibility.

POISONS AND ANTIDOTES.—The subjoined table affords at a glance guidance in cases of poisoning.

Irritant Poisons.	*Antidotes.*
Mineral acids, as vitriol or sulphuric acid, nitric acid, spirits of salts, hydrochloric acid	Magnesia, chalk, or whiting mixed with milk or water; washing soda in the same.
Vegetable acids, as oxalic acid, tartaric acid, acetic acid, salts of sorrel, cream of tartar	Chalk, or whiting, or soda in milk or water.
Alkalis, as potash, soda, ammonia, sal volatile, smelling salts	Equal parts of vinegar and water, lemon juice, oil.

Irritant Poisons.	*Antidotes.*
Salts. Baryta and its salts	Epsom salts.
Alum	Washing soda, smelling salts in water.
Arsenic and its salts	A mixture of oil and lime-water, emetics, sulphate of zinc, soap-suds, mustard, milk, flour and water.
Corrosive sublimate and salts of mercury	White of egg in water, wheat flour thick in water.
Salts of lead, sugar of lead, white lead	Epsom salts and vinegar diluted.
Salts of copper, blue vitriol, verdigris	White of egg in water, milk, wheat flour in water.
Antimony, as tartar emetic	Tincture of kino or catechu, magnesia, tannin or gallic acid.
Butter of antimony	Magnesia, washing soda, chalk.
Salts of zinc, as sulphate or acetate	Milk, soda, magnesia.
Iron, as sulphate of, or green vitriol	Soda or smelling salts.
Silver, as nitrate of, or caustic	Common table salt in water freely.

Narcotic and Deliriant Poisons.	*Antidotes.*
Opium, morphia, aconite, hemlock, dhatura	Emetics, mustard, sulphate of zinc, strong coffee, motion and means to prevent sleep.

Other Poisons.	*Antidotes.*
Prussic acid	Ammonia, sal volatile, smelling salts, hartshorn.
Strychnine	Emetics.

RIDER'S BONE.—This is not a very common malady, but it may occur to those riding a great deal, as so many in India are obliged to do. Or, it may result from violent efforts to grip the horse when making a jump. The symptoms consist of pain in the inner surface of the thigh, close to the trunk, and generally extending to the knee. There may also be an appearance of bruising coming on immediately, or not till some hours afterwards. The injury usually leaves some degree of thickening or hardness of the tendons of the muscles, in the inner part of the thigh, which in some cases has become almost like bone; hence the name 'Rider's Bone.' Generally, the symptoms subside under the influence of rest and fomentations. If neglected, the hardness may become permanent, causing probably some amount of lameness, and inability to ride far or fast.

RUPTURE.—Technically spoken of as *hernia*; vulgarly as 'broken belly.'

There are several varieties of rupture, but the most common appear in the *male* as a tumour in the groin; in the *female* as a tumóur a little lower than the groin. This tumour or swelling is caused by the muscles over the bowels giving way, and letting some portion of the intestines escape outwards beneath the skin. The affection may come on gradually from natural weakness of the parts, but it more often happens suddenly during extraordinary exertion, as running, wrestling, pulling, jumping, or straining at stool. A sudden sensation of something snapping or giving way is felt, and the swelling appears. In the male, the rupture eventually makes its way into the scrotum, or purse. In the female, it remains as a smaller tumour in the groin.

When a rupture has occurred, the bowel may return into the cavity of the abdomen, when it is said to be *reducible.* Or, it may remain fixed by the ruptured muscular fibres through which it has passed, in which case it is said to be *strangulated.*

In the *first* result no extraordinary symptoms occur; but a rupture having once occurred, the tumour is always liable to come down when the person stands or walks about; and although it may return when he lies down, or when pressure is made, there is always danger that it may not do so—that it may remain down and become *strangulated*, as afterwards described. A person thus affected with reducible rupture, should avoid any excessive exertion, and will require to wear a truss. This is an instrument composed of a pad or cushion, connected with a circular metallic spring, and so arranged that the pad keeps the bowel from descending, the spring maintaining the pad in position, and at the same time allowing freedom of movement of the body. A truss should be fitted to the person by the instrument-maker, under the supervision of a surgeon. But if obliged to send for a truss, the measurement of the body, one inch below the hips, should be given, and the side affected should be mentioned. Care should be taken that the spring is strong enough to control the rupture, and to ascertain this, after adjusting the truss, the patient should stand up, with his legs wide apart, and cough strongly. If the truss is not suitable, the rupture will then come down. It is well for the truss and pad to be covered with leather, from which the skin is less likely to chafe. If it does so, it should be bathed with alum water (Recipe 58), until the propensity to fray is overcome. The truss should be put on *before* rising in the morning, worn all day, and be taken off *after* lying down at night. Children should wear their truss all night, as they cannot be made to understand the danger of starting up, and allowing the rupture to come down suddenly. It is, moreover, often desirable for a person although only ruptured on one side, to wear a double truss, for there is often a weakness of the corresponding region on the opposite side of the body, and with a truss upon one groin, a greater strain is thrown upon the other, which is therefore apt to give way. Unless a truss fulfils all the requirements as above, and unless it is used in the manner directed, it is worse than useless, and may do injury. Without a truss, a person with reducible rupture is in constant danger of life; with a good truss, properly used, he is safe.

If, when a rupture first appears, a truss cannot be procured at once, the figure of ∞ bandage described at p. 93, with a good pad over the rupture, should be used.

In the *second case*, when the tumour does not return, symptoms of what is termed *strangulation* quickly show themselves. The patient first complains of flatulence, colicky pains, a sense of tightness across the belly, desire to go to stool, and inability to evacuate the contents of the bowels. Some fæcal matter may, however, be passed, if any happens to be present *below* that part of the intestinal tube which has become strangulated. To these symptoms succeed vomiting of the contents of the stomach, then of bilious matter, and lastly of matters which have acquired the odour, and often the appearances of fæces. On examination of the part, the swelling will be found tense and incompressible. If this state of matters continue, the inflammatory stage sets in. The tumour, and eventually the whole surface of the belly, becomes swelled, tender, and painful. The countenance denotes anxiety, the vomiting is constant, the patient restless and desponding, the pulse is small, quick, and wiry to the touch, and there is constant hiccup. After a variable time the parts begin to mortify, the tumour becomes dusky red, the pain ceases, and the patient, having probably expressed himself relieved, soon after dies.

Treatment.—The great point is to return the protruding intestine into the cavity of the abdomen. The bladder having been emptied, the patient should lie down with his shoulders raised, and with both thighs bent towards his belly, and placed close together. This relaxes all the muscles. Then the operator grasps the swelling with the fingers if small, with the palm of the hands if large; and *gently* compresses it. This will probably dispel wind, and other contents of the swelling, into the cavity of the belly. Then the swelling may be raised by its neck, *gently* pulled forward, and again 'kneaded' or compressed. This should be continued for a quarter of an hour if the swelling is not tender, and there is no hiccup; but for a shorter period if the reverse conditions are present. Too much force must not be used, otherwise the tumour may be pushed between the muscles, instead of back into its proper place. If this does not succeed, the patient should be either put into a hot bath, or chloroformed, and similar endeavours made while the person is in the water, or when he is insensible from the chloroform. If there is no chloroform, or no one to administer it, and symptoms of strangulation are not violent, a large dose of chlorodyne or chloral, or, if available, forty drops of laudanum in an ounce of water, may be given and the patient let alone for a time, when the rupture may return, or it may be returned by repetition of manual endeavours as above. When such endeavours are successful, the tumour usually disappears with a sudden gurgling, the pain is immediately relieved, and the vomiting stops. A pad should be carefully placed over the part, and the figure of ∞ bandage applied (*vide* p. 93). The diet should be fluid, until the bowels have acted naturally, and no aperient medicine should be given; but if the bowels do not act in twelve hours, an injection of warm water and soap should be used (Recipe 104).

If symptoms of strangulation are urgent, and the swelling cannot be returned, a surgical operation of an important and dangerous character affords the only chance of recovery.

Caution.—In all cases of rupture, purgatives either given by the mouth or as enemata are mischievous, and will do harm. Therefore, the feeling of a desire to stool, or entreaty on the part of the patient for something to open the bowels, should not be complied with.

Rupture is liable to be mistaken for *hydrocele* (*vide* p. 264) or for *varicocele* (*vide* p. 399), or *vice versâ*. The distinctive features of the three affections are therefore placed in contrast. Attention to the tabular statement, aided by reference to the pages indicated above, will, it is believed, enable anyone to form a correct conclusion with regard to these ailments when they occur, as they generally do, in their simple uncomplicated form. Extraordinary or complicated ailments of the kind cannot be considered in a work of this scope.

RUPTURE.	HYDROCELE.	VARICOCELE.
Usually comes on suddenly.	Comes on gradually.	Comes on gradually.
Disappears when the person lies down, and reappears when he stands up.	Does not disappear when the person lies down.	Disappears when the person lies down.
If the fingers of the patient, or of another person, are pressed on the part called the *external ring* when the patient is lying down, and he rises with the fingers still pressed on the part, a rupture does not return. The *external ring* is the part through which the rupture passes, and is situated about an inch above, but to the side of, the root of the penis.	Pressure with the fingers makes no difference. The swelling remains as before.	Pressure with the fingers does not prevent the reappearance of the swelling, which gradually returns when the person stands up.
The tumour commences from above, or in the groin.	The tumour commences from below, or in the purse.	Commences from below, or in the purse.
Tumour tense, or elastic; or 'gurgling' may be felt or heard inside.	Tumour smooth and uniform, affording a fluctuating feeling, like water in a bladder.	Feels like a bag of worms.
When the person coughs the impulse or shake communicated by the cough is felt in the tumour.	No impulse or shake from coughing felt in the tumour.	No impulse or shake from coughing felt in the tumour.

RUPTURE.	HYDROCELE.	VARICOCELE.
The tumour is opaque.	The tumour is more or less translucent: that is, the light may be seen through it.	The tumour is opaque.
No pain or tenderness in the tumour, unless *strangulated.*	No pain or tenderness in the tumour.	Dull aching of the part.
The tumour does not obscure the testicle, which may be felt below it.	The tumour obscures the testicle, which is behind it.	The tumour does not obscure the testicle, which is below it.
No distinct separation between the tumour and the lower part o the bowels.	Distinct separation between the tumour and the bowels.	Distinct separation between the tumour and the bowels.
Dangerous to life.	Not dangerous to life.	Not dangerous to life.

RUPTURE AT THE NAVEL.—This is a form of rupture most frequently happening to children. It may result from inattention to the navel after birth, or it may occur suddenly during severe paroxysms of crying, or straining at stool. It is known by a bulging of the navel, which sometimes is pushed forward, and assumes the size of an egg.

Treatment.—A large piece of cork covered with lint should be fitted over the swelling, and retained in its position with strips of plaster and a bandage. But as soon as possible, the age and measurement of the child should be sent to a surgical instrument maker, and an elastic bandage constructed for the purpose should be procured. This the child should wear constantly, and fits of crying should as much as possible be prevented, as the rupture always protrudes more on such occasions. As the child grows, the tendency of the tumour to increase lessens, and by constantly using pressure as above, the tumour will gradually disappear.

It sometimes, however, occurs that *direct* pressure applied as above does not succeed, owing to weakness of the muscles immediately surrounding the protrusion. If this is the case, an oval-shaped pad should be constructed of gutta percha or wood, having a central circular opening, the edge of which should be raised to the height of three quarters of an inch, and gradually sloped to the circumference. The pad may be one inch and a half broad by two inches long, the central circular hole should be the size of a sixpence, and the *under* surface of the pad should be flat. The pad should be secured over the navel by strips of sticking plaster, the effect being pressure on the *margins* of the protrusion, instead of on the rupture itself. The raised edge of the circular opening above referred to renders it more easy to make the proper degree of pressure with the plasters than if the surface were flat.

SPLEEN, RUPTURE OF THE.—When the spleen is diseased or enlarged, particularly in Natives, it is excessively tender and friable, and a very slight blow or injury will frequently rupture the organ. Sometimes, when in such a condition, the spleen ruptures simply from the force of a fall. When the organ is torn or ruptured, blood escapes into the cavity of the bowels, and the symptoms presenting are those of collapse (*vide* p. 454), the person becoming faint, complaining of great pain, and the pulse rapidly growing imperceptible. Such injuries are nearly always quickly fatal, and no medical treatment is of much utility. Perfect rest, and the judicious administration of stimulants, are indicated; but stimulants must be given with the greatest caution, and only when the pulse can scarcely be felt; otherwise, the excitement of blood circulation they cause will add to the intense bleeding.

SPRAINS or STRAINS.—These injuries may be defined as dislocations begun, but not completed. The terms signify a violent stretching of the tendons, ligaments, or muscles of the part. Sprains generally occur to the joints, as the ankles, wrists, or knees. Some of the fibres of the tendons about the injured part are often ruptured or torn. The symptoms are severe pain, often attended with faintness, followed by great swelling and discoloration, with subsequent weakness and stiffness. If the part is not kept at rest, or if the diet be intemperate, or the blood impure, or if the knee or some other large joint is injured, there may be great pain, inflammation, and fever, which, if neglected, may lead to serious results. A sprain is to be best distinguished from a dislocation, by pressing the joint steadily and firmly. If it be a dislocation the end of the bone is felt firm and hard; while the swelling caused by a sprain is soft and yielding. The absence of grating distinguishes sprain from fracture.

Treatment.—The most essential measure is *perfect rest*, and to insure this, if the case be at all serious, the injured part should be confined by pasteboard or gutta percha splints. If the wrist is injured, it must be constantly suspended in a sling. If the ankle, the patient must lie or sit, with his leg immovable on a couch or stool. Warm fomentations generally give more relief than cold lotions, but in this the patient's feelings may be consulted (*vide* p. 592). If inflammation and fever are high, and a large joint is affected leeches should be applied, and cooling medicines, as citrate of magnesia (*vide* p. 14), may be administered. Subsequently, friction with soap liniment, moderate exercise, and the support of bandages will be required. After a sprain the part often remains weak, and liable to injury for some time. In delicate children neglected sprains are frequently the origin of disease of the joints (*vide* p. 268).

TEETH, INJURIES OF THE.—When a tooth is broken, any sharp or jagged point should be smoothed with a fine, sharp file, which will prevent injury to the mouth or tongue, and, moreover, render the tooth less liable to decay commencing from the seat of injury. The part should be afterwards touched several times daily for a week with spirits of wine, which renders the tooth hard and insensitive. If a tooth is loosened so much as to be almost thrust from its socket, or to shake about, it should not be removed, as with care it will probably again unite to the gum. It should be carefully replaced in its natural position, and the person should be instructed to avoid pushing or moving it with the tongue. If it will not remain *in situ*, a fine piece of wire or silk, or a horsehair, should be passed round it and the adjacent tooth, so as to prevent motion. It has often happened that a tooth knocked out of the mouth, or drawn by mistake by a dentist, having been immediately returned to the socket, has again taken root. These facts have led to the replanting of teeth as an operation of dental surgery, so that a loose tooth should never be despaired of, or extracted, simply because it has become loose from some injury.

URINE, RETENTION OF.—Retention of urine signifies an inability to pass water, *not a stoppage* of the formation or secretion of urine. In this condition, urine still flows from the kidneys where it is secreted, into the bladder, but cannot escape from the latter organ. The causes are various, but they all come under two heads; *first*, an *obstruction* to the passage of the urine; *second*, a *want of power* of the bladder to expel it. Retention of urine from an *obstruction*, may arise from stricture (*vide* p. 365); from an enlarged prostate gland (*vide* p. 315); from a small stone lodging in the passage (*vide* p. 66); and often from injury, such as falling cross-legged on a gate or wooden bar, which may cause bruise, swelling, or worse injury of the parts about the passage. The symptoms and treatment of retention from the different maladies named, are given under the respective headings. When retention occurs from injury, fomenting between the legs and over the bowels with a dose of chloral (Recipe 75) will generally afford relief. Otherwise, the catheter must be used, as described at p. 430.

When retention arises from *want of power* of the bladder to expel its contents, it is generally caused by some injury or disease of the spine (*vide* p. 492); or it may occur after dislocation, or fracture, of the thigh (*vide* pp. 472, 508). In such cases the bladder is paralysed, and the urine, collecting till the bladder is full, then dribbles away. It also becomes very thick and offensive. The treatment consists in drawing off the water two or three times a day; or, after fracture or dislocation of the thigh, in first trying fomentations to the lower part of the bowels.

WOUNDS AND CUTS.—A wound differs from a bruise in involving an opening in the skin. Wounds present many different characteristics, as they may be clean cut with a sharp instrument as a sword, or made jagged and ragged by a blunt instrument as a saw, or bruised as by a rough club or stick, or punctured as by a sharp pointed instrument as a bayonet.

In the first variety, of clean cut or incised wounds, bleeding must be first checked, and then all dirt and *débris* removed. To arrest bleeding, a raised position, the application of cold water, and pressure with a sponge will often suffice. But if an artery is wounded, and the bleeding prove obstinate, measures must be adopted as pointed out in the paragraphs on *Bleeding or Hæmorrhage* (p. 440). The removal of dirt and foreign bodies from the wound may be effected by a stream of cold water, by the sponge, and by the forceps. Having thus stopped bleeding and removed dirt, all clots of blood should be taken away, and the wounded part placed in such a position as will best favour approximation of the cut edges, which must be brought together and maintained in position by long strips of adhesive plaster; one end of the plaster being first applied to that side of the wound where the skin is most loose. Then a light pad of lint should be placed over the wound, and a bandage applied to retain all in position. For a very slight clean cut wound collodion may suffice instead of sticking plaster. To apply this agent, the edges of the cut should be held together while the collodion is applied with a brush. The collodion quickly hardens and contracts, and the wound is allowed to heal beneath. But for larger wounds, and especially for wounds of loose parts as the eyelids or ear, sutures and stitches will be often required. But stitches should never be used to *drag* the edges of a wound together, and they should be removed on the third or fourth day, otherwise inflammation may result from the irritation of their presence. In stitching a wound the needle should be passed deep enough to obtain a firm hold, but should not penetrate any tendon or muscle; and, as a rule, one stitch will be required for every inch of wound. Clean cut wounds should not be opened the day after they are dressed, but may be cautiously re-dressed on the third day. Care must then be taken that the support of one strip of plaster or of the fingers is always afforded, otherwise the union taking place will be broken through. In removing or changing the plasters the *ends* should be first raised, and both ends should be lifted up at the same time, from the outside to the centre, so that no dragging may take place tending to separate the edges of the injured part. Care must also be taken to thoroughly clear away all discharge, lest it become offensive and maggots appear. After the third day all wounds in India should, as a matter of cleanliness, be dressed daily, and washed with carbolic acid solution (Recipe 117).

It may be well here to say, that although thorough division of a part may have taken place (*e.g.* a finger, or a toe, or a portion of the nose or ear may have been completely severed), still, an attempt to unite the divided parts should be made, and success will frequently follow the attempt.

The neglect of cleanliness of wounded parts is frequently followed in tropical climates by the appearance of maggots, which sometimes form in great numbers. The presence of these larvæ, which prey upon the surrounding textures (*vide Worms in the Nose*, p. 426), altogether interferes with the healing process, and their expulsion is matter of urgent necessity. This is readily effected when the wound in position and form permits easy access to all parts of the injury. Then, the maggots may be picked out with forceps, or destroyed by injections, of which the best is black wash (Recipe 88), or, this not available, lime-water (Recipe 41). If, however, maggots have penetrated into a sinus stretching away from a wound, the use of the knife to open up the part may be necessary; or the maggots will not only prevent healing, but also cause the formation of abcess, and a trivial case may thus be converted into a very serious one.

In cases of Jagged, Lacerated, or Contused Wounds, while restraining bleeding and removing foreign bodies may be easily accomplished, it will often be impossible to approximate the edges of the wound, either by plaster or stitches. But this should be effected as far as possible. In many wounds of this description the laceration is so great, that it is necessary to abandon all attempts to bring the edges correctly together. In these cases poultices, and afterwards cold-water dressing, will be the best treatment; the wound being allowed to heal by what is called granulation and cicatrisation.

In Wounds of the Scalp, which may be either cleanly cut, or jagged and lacerated, in addition to restraining bleeding, clearing away foreign matter, and removing clots of blood, the hair must be cut away, and the scalp shaved for several inches round the wound, in order to afford space for the application of plaster. In bad scalp wounds it is sometimes necessary to shave the whole head. Wounds of the scalp, however slight, should never be neglected, as they are particularly liable to be followed by erysipelas; and for a similar reason, the use of stitches in scalp injuries should, whenever practicable, be dispensed with.

Punctured Wounds, with which may be classed gunshot wounds, and wounds of joints, are the most dangerous—because deep-seated blood-vessels or nerves are so often implicated; because the parts punctured must be also stretched and torn; in consequence of foreign bodies, as dirt, bullets, pieces of clothing being often carried very deeply into the body; because there is often no free exit for matter formed in the course of the wound; and because such injuries are more liable to be followed by lock-jaw or tetanus. Both punctured and gunshot wounds are often attended with great shock to the system, so that in most cases some stimulant, as brandy and water, or wine, will be required immediately after the accident. If a foreign body, as a bullet, a piece of cloth, a piece of glass, a part of a knife, an arrow head, can be felt, it should be gently removed with the fingers, or a pair of forceps. If faintness and depression or loss of blood indicate wound of some important internal organ, or of a large artery, the case assumes a most serious aspect, and demands the highest professional skill. But in all instances it will be best to apply cold-water dressing to the wound, to keep the patient lying on the wounded side, so as to favour escape of blood or discharges, to enforce perfect rest, and to give low diet. If the wound begins to throb and the sufferer becomes feverish, poultices should be applied, and a purgative, Recipe 2, and cooling draughts of citrate of magnesia (*vide* p. 14) should be given.

WOUNDS OF INTERNAL ORGANS.—The following symptoms may, perhaps, serve as some guide in distinguishing wounds of internal organs.

WOUNDS OF THE BRAIN.—These injuries will be accompanied by the state known as *concussion* (*vide* p. 457), in which the patient lies cold, motionless with pale face, irregular pulse, the surface of the skin being covered with a cold perspiration. After a time, varying from minutes to hours, vomiting generally occurs, and the injured person may recover consciousness; or, the state known as *compression* (*vide* p. 461) commences, and he sinks into stupor.

WOUNDS OF THE LUNGS.—There is great difficulty of breathing and sense of suffocation, the countenance is pallid and anxious, and there is expectoration of florid blood mixed with clots, which is coughed up in mouthfuls. These symptoms may subside, or the patient may die from exhaustion from loss of blood; or at a later period, from inflammation of the lungs.

WOUNDS OF THE BOWELS, LIVER, SPLEEN, AND ABDOMINAL ORGANS.—Wounds of the bowels, liver, spleen, or other abdominal parts are marked by similar symptoms of faintness or depression, with feeble, and intermitting pulse. If the bowels are wounded there will probably be vomiting of bile or blood, and perhaps the passage of bloody stools. If the kidneys are injured there may be bloody urine. Death may occur immediately from 'shock,' or loss of blood, or afterwards from accession of inflammation and its results. Death from rupture of the spleen often occurs to Natives (in many of whom this organ is enlarged or diseased) from a slight blow or from a fall, which suffices to rupture the organ without even any external mark of injury. In such cases the only means to be adopted are keeping the person as quiet as possible, giving a stimulant in very small quantity at a time, and desisting altogether if the pulse becomes stronger. Under such measures, if the rupture or internal wound is small, the flow of blood may cease, the wound unite, and the patient recover.

If from a wound of the abdominal wall the bowel should protrude, it must be carefully washed with warm water, cleansed from all impurity, and at once returned by pressure with the fingers. If the bowel itself is torn, the wound must be closed; if very small, by pinching up and tying; if large, by stitching it up. The edges of the wound should be *turned in*, so that the outer surfaces come into contact. Fine silk should be used, and small stitches taken. The ends of the thread should be cut close off, and the bowel then returned, as if it were uninjured. If the patient recover, the ligatures will drop into the cavity of the gut, and no ill consequences result. The external wound should be closed up by stitches and plaster, supported by a pad and bandage. Ice should be applied to the abdomen afterwards.

WOUNDS OF THE THROAT.—These wounds are generally made with the intention of suicide, and are extremely dangerous, both from the importance of the parts injured, and from the accompanying desponding condition of the patient. They may be clean cut, or jagged and lacerated; they may be superficial or deep; they may implicate arteries, veins, windpipe, or the gullet. If the air passage only is cut, recovery often takes place; but if large blood vessels are cut, death occurs rapidly from profuse bleeding.

Treatment.—In the first place, any arteries that are wounded must be tied (*vide* p. 442), and bleeding from veins, known by the blacker colour of the blood (*vide* p. 440), must be restrained by pressure with the fingers. The patient should be put to bed in rather a warm room, and as soon as all bleeding has ceased, *but not before,* the shoulders should be raised on pillows, with the head bent forward. The head should be retained in this position by tapes passing from each side of a cap, or of a bandage round the head, to another bandage placed round the chest. *No* plasters or sutures should be used, except under surgical advice. If the wound penetrates the windpipe, it should be covered with a loose woollen comforter, or a layer of cotton wool. If the gullet is wounded the patient will probably require to be fed with a tube. The great thirst complained of in these cases may be relieved by sucking wet rag or ice. As these injuries are generally inflicted with a suicidal intent, it will be needful to have the patient narrowly watched, or he may repeat the attempt. If the patient is unruly, and tries to tear open the wound, he may be confined by a strait waistcoat (*vide* p. 40).

WOUNDS OF THE EYES.—Wounds of the eyes may result in various injuries to these important organs, which, however, can only be correctly understood by those conversant with the anatomy of the parts. But in all cases of cuts or wounds of the eyes, any protruded part should be gently and carefully pushed back with a probe; and until surgical advice is forthcoming, the patient should be placed in a darkened apartment, the lid should be kept closed by a covering of cotton wool and a light bandage, and cold water should be used as a lotion. Purgatives should also be administered, and abstinence from stimulants should be enjoined.

It will also be advisable to obtain a solution of *atropine*, of the strength of two grains to an ounce of water, a drop or two of which should be dropped into the eye twice daily, in order to dilate the pupil and prevent adhesions from inflammation.]

WOUNDS OF THE PALM OF THE HAND.—Wounds in this position sometimes give much trouble from the artery passing through the palm being injured (*vide Bleeding from the Palm*, p. 444). After bleeding has stopped, the wound should be dressed daily with plasters.

WOUNDS OF THE TONGUE.—Injuries of the tongue are liable to occur, in connection with other accidents, when the organ, during the shock, gets accidentally thrust between the teeth. As a general rule, it is best to leave wounds of the tongue entirely to nature, as it is difficult to introduce ligatures, and plasters are inadmissible. But sometimes wounds of the tongue bleed very freely, and may require ligature of an artery; or perhaps the actual cautery (a red-hot iron wire) may be necessary to arrest the bleeding.

WOUNDS CAUSED BY THE BITES OF ANIMALS.

TIGER BITES.—These injuries may be superficial, or, as is more generally the case, they may involve deep-seated parts. The hand, for instance, may be seized and bitten to pieces; the chest may be seized, when the teeth or claws will probably penetrate the lungs. Or the thigh may be seized, and the large artery wounded. When such accidents occur, measures to arrest bleeding should be first taken (*vide Bleeding or Hæmorrhage*, p. 440), after which the wounds should be thoroughly cleansed, and water dressing applied, and the patient conveyed to the nearest surgeon. If the injured person is fortunate enough to escape with only superficial fang or claw wounds, poultices should be applied for the first few days, and afterwards simple dressing or water dressing.

There is a very general impression, that wounds from the teeth or claws of animals are poisoned by some deleterious agency thus introduced. This idea is not, however, correct, and has arisen from the slow manner in which such wounds heal, they often being attended with considerable discharge of matter, or even sloughing of the injured parts. The fact is, that wounds from the teeth or claws of animals must necessarily be attended by puncture, laceration, and contusion of the person: conditions quite sufficient to account for the slow manner in which they heal, as compared with wounds made by sharp clean-cutting instruments. Provided the animal inflicting the injury is a healthy animal, the wounds are not poisoned by either teeth or claws.

Bear Bites.—The remarks on tiger bite are also applicable to injuries inflicted by the bear.

Horse Bites.—These injuries being generally attended with considerable bruising, require well washing with warm water, poulticing, and rest of the part injured; afterwards water or simple dressing.

Camel Bites.—Injuries from the bites of camels are of frequent occurrence in those parts of India where this animal is much in use. Like horse bites, they are attended with much bruising of the parts, and a sharp tooth may sometimes penetrate and wound an artery, as, for instance, the artery of the wrist. If such complication occurs, the flow of blood must first be stopped, as directed under *Bleeding* (p. 440). Afterwards the parts should be treated as advised for horse bites.

Dog and Cat Bites.—A bite from either dog or cat which is not mad is often difficult to heal, from the wounds being punctured, contused, or lacerated. Such injuries should be first thoroughly washed with warm water, after which a bread poultice may be applied for a day or two. If there is pain in the wound, the parts should be fomented with hot infusion of poppy heads (*vide* p. 591) previous to each change of poultice. After several poultices have been applied, or when the wounds look clean and free from discharge, simple dressing, or water dressing should be used (*vide* p. 594). For the treatment of the bite of a mad dog, refer to *Hydrophobia*, p. 258.

It may be here remarked, that there is no particular danger from the bite of a dog, unless arteries or other important parts are injured. The idea that a person bitten by a dog will suffer from hydrophobia if the dog should *afterwards* go mad, is altogether erroneous. And the practice of killing a dog because he has bitten a human being, in order to prevent the occurrence of hydrophobia in the latter, is a procedure as ridiculous as useless. If the dog goes mad *after* the infliction of the bite, there is no danger whatever of hydrophobia to the person bitten.

WOUNDS FROM SCRATCHES BY A CAT.—These are best treated by first well washing the part with warm water. and if deep, applying a poultice. If not deep, a little simple dressing should be used. All slight scratches, whether from the claw of a cat or from the tooth of a horse or dog, may be sucked, as the ready means of preventing future irritation.

WOUNDS CAUSED BY SNAKES.—There are in India twenty known genera of snakes, of which only three are poisonous. Of the genera, there are 180 individual innocuous species, and 33 poisonous.

There are two varieties of poisonous snakes, the *Viperine* and the *Colubrine*. Such snakes have only two teeth in the upper jaw, and these are the erectile poison fangs. There are other teeth in the palate of this class, but no other teeth in the jaw proper. The poisonous classes of snakes may be distinguished by the large erectile poison fangs deeply indented on their convex surface, and situated in the upper jaw midway between the eye and the nostril. These are twice the size of any other teeth. In addition to the above distinctions, the *Viperine* poisonous snakes have stumpy tails, and ill-looking triangular-shaped heads. The *Colubrine* poisonous snakes are hooded. Neither have the *loreal* shield.*

The bites of poisonous snakes, as a rule, show two marks, thus, : When there are more than two marks, :: it may be generally safely assumed that the reptile was not poisonous, or that the wound has not been inflicted by the poison fangs.

It does not follow that even when a fresh, vigorous cobra bites, the injury will be fatal. The poison fang is of a crooked shape, and it may happen, that when the reptile, in his fright or in his rage, darts on his enemy from an angle, the position will not admit the entrance into the skin of the curved point of the venom tooth. In such a case the poison tooth lies almost innocuous, as a very curved sword would do if it were thrown at a man so that the back of it and not the point should strike him. Yet these are the snake wounds which look the most terrible. The reptile, feeling he has missed his mark, keeps biting and sawing at the flesh with the fish-like teeth of the palate, and when he lets go his hold, blood and slime stream from the bite. Yet the person bitten may perhaps not have received the hundredth part of a grain of poison into the system. It is such cases, or cases of bite of non-venomous snakes, which are frequently reported as cured by the numerous nostrums constantly appearing before the public in the Indian journals.

Again, it is a known fact that venomous snakes, at particular periods of their lives, and at particular periods of the year, especially about the first fall of rain, possess more poisonous venom than at other times. *Secondly*, a snake, irritated by injury or other causes, will secrete more poisonous venom. *Thirdly*, the poison will take greater effect in the system of a person already in a bad state of health, and therefore predisposed to disease. *Lastly*, if the bite takes place through clothing, much of the poison must be received by the intervening substance, and less will therefore penetrate the skin. In all this we have additional explanation of the apparent recovery of persons from snake-bite, when treated by the numerous nostrums at one time or other vaunted as certain remedies.

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* A crescentic-shaped scale, directly behind the nasal shield.

It should be recollected that venomous snakes will not bite unless meddled with. A snake will, as a very general rule, retire if it can. And the fact of many Natives being bitten when asleep, does not affect the truth of this assertion. A snake gliding along, passes over the leg, foot, hand, or arm of the sleeper, when the latter, feeling something, unconsciously moves, and the snake, alarmed, strikes in self-defence. Similarly, a person is walking through a jungle path, or in the dark. A snake lies in the centre, or at the side, probably asleep. It is disturbed, alarmed, perhaps touched by the passenger, and darts, in self-defence, at the intruding object. Of all snakes the *Kerait* is the most vicious, and most inclined to attack without cause. But usually a snake will creep out of harm's way, and not prove aggressive. It is therefore a good precaution, when proceeding in the dark about snake-haunted localities, to make as much noise as possible, by treading heavily, or by tapping on the ground with a stick. Reptiles lying on the path will then use their best endeavours to escape.

The parts of the body most frequently bitten are the fingers, toes, ankles, and hands, and the person, if asleep, is at once aroused by the pain. This is not very severe at first, but soon increases in intensity, extending rapidly upwards towards the body. There is faintness, sickness, and probably vomiting. The breathing becomes short and laboured, the pulse quick and intermittent. Cold sweats and often convulsions succeed, and the patient, becoming insensible, sinks, sometimes in a few hours. More commonly, however, the case is prolonged several days. The wound becomes discoloured, the limb swells, blisters may form near the injured part, abscesses may occur in any part of the limb, and the glands of the armpit or groin (according to the limb injured) enlarge, inflame, and suppurate. The absorbents are also inflamed, appearing on a fair skin as painful red lines stretching up from the wounded part towards the groin or armpit. Sometimes there is diarrhœa, at others hæmorrhage or bleeding from the snake bite, or from scarifications made in the neighbourhood. In some cases there is also bloody urine. At a later period there may be bleeding from the nose, bowels, or gums. The depressing effects of fear will, in most instances, aid the operation of the poison; and the symptoms will be more or less intense, according to the amount of venom inserted into the wound.

It is stated that, occasionally after snake bite, the person sinks into a lethargic condition, without pain, and remains insensible till life is extinct. This immediate lethargy from snake bite is certainly uncommon, but as well-authenticated instances are on record, the possibility of such symptoms should be borne in mind.

Treatment.—Although no antidote has yet been discovered for snake bite, there is no doubt that medical and surgical treatment often saves the lives of persons thus injured. First, if possible, tie a tight bandage or string round the limb, a few inches *above* the wound. The ligature should be tight enough to arrest the circulation, which may be known by the part below becoming red, and then darker coloured. Then, let the wound be *well* sucked; afterwards, or at first, if suction cannot be accomplished, freely scarify it with a lancet or sharp penknife, by small cuts all round, and encourage the bleeding by immersing the part in hot water, in the wound and flashed.

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WOUNDS FROM SCORPIONS AND CENTIPEDES.—In most parts of India these pests are very numerous, and may be expected amongst old rubbish, under old rolls of carpet, or beneath stones, or the *débris* of building. The parts injured swell, smart, ache, and frequently the absorbent vessels running from the sting are implicated, as evidenced by a red line, or lines, seen in the skin. Death following scorpion sting has been recorded in at least three instances, but ordinarily to a person in good health such injuries will not prove dangerous. The best applications are poultices made of equal parts of opium powder and ipecacuanha powder; or, if both are not available, of ipecacuanha powder alone; or a rag moistened with tartaric acid dissolved in water. If the latter is used, as much of the acid should be dissolved in the water as the latter will take up. If these applications are not at hand, a rag steeped in vinegar, or in sal volatile, should be laid on the part; or a strong solution of common salt and water may be employed. The inflamed red line of absorbent vessels should be fomented, and it will generally be advisable to give some aperient dose.

WOUNDS FROM WASPS OR BEES.—One or two stings from these insects are not ordinarily of much consequence, although irritating and sufficiently painful. But when, as sometimes happens, a swarm of wasps attack a person, the number of stings inflicted may induce serious or even dangerous illness. Or in delicate persons, or children, several stings may cause severe constitutional symptoms. Under such circumstances a stimulant will be probably first required, after which the stings should be extracted. This is best effected by pressing the tube of a small key over the part injured, when the sting, if left in the wound, will probably start out, or a watery fluid will escape, carrying with it some of the venom or its effects. If a lens be at hand, it will be well to examine each wound with the glass, when perhaps the sting may be seen, and it may be extracted with fine forceps. Then, the best applications are sal volatile, or vinegar and water, or eau de Cologne; or, if these are not at hand, moist snuff or tobacco may be rubbed in. At a later period soap liniment may be used, to remove any remaining swelling of the skin.

In cases of stings *inside the mouth* or in *the throat*, the sting should be sought for, and extracted if possible. Ice should be kept constantly in the mouth, and leeches should be applied outside. If danger of suffocation appears urgent, the operation of opening the *trachea*, or windpipe, may be required.

WOUNDS FROM MUSQUITO BITES.—The effect of a musquito bite or sting does not altogether depend on the fact of the introduction of the proboscis of the insect into the skin, for so small an object, even although containing six lancets, would scarcely create the irritation so often following a musquito sting. The fact is, that there is not only the wound thus inflicted, but also the discharge of an irritating fluid into the wound. This liquid may sometimes be seen exuding from the trunk of a musquito, like a minute drop of clear water. A musquito bite usually rises into a small white hard lump, which on further irritation may inflame, suppurate, and become a very obstinate sore, particularly if the individual be either too plethoric, debilitated, scorbutic, or otherwise out of health. The best application is, probably, sal volatile; or a strong solution of carbonate of potash in water; or, if these are not at hand, vinegar. Or water alone may be well rubbed into the part, so that some of the fluid may enter the minute wound made by the sting, and dilute the poison. Any sore afterwards forming must be treated in the ordinary manner, as if arising from other causes.

Microscopical research has proved that, after a musquito has fed on an individual or animal affected by *filaria* (a microscopical worm found in the blood), the insect's stomach will contain living examples of the parasite. The latter escape, when the musquito dies, in the water to which it betakes itself; and it is believed the parasites may thus find their way with water into the human system. It is not improbable also that *filaria* may be directly conveyed from one person to another by musquitoes, when they bite. The influences which *filaria* in the human blood exert, are not well understood; but it is possible they may have more connection with certain diseases, than has been yet recognised. However this may be, enough has been proved to afford another reason why persons in tropical climates should seek protection from musquitoes; also, another reason why care, as regards purity of drinking water, insisted upon at p. 635, should be systematically practised.

WOUNDS FROM LEECHES.—In some parts of India small land leeches abound. They are about one inch long and very thin, but when distended appear much larger. From trees, on which they are often found, they will insinuate themselves through every aperture of clothing, or down the back of the neck. They are of a yellowish-brown colour, streaked with black, with one greenish line along the whole length of the back, and a yellow one on each side, so that they are not easily seen when hidden among green leaves or grass. Their bites scarcely inflict any pain at the time, but they cause a very uncomfortable after-irritation, and in persons in a bad state of health often occasion ulcers, which are difficult to heal. The bleeding should first be stopped (*vide* p. 447), and then a cooling lotion should be applied. Any ulcer forming must be treated on ordinary surgical principles.

When passing through water or marshes, in which these leeches abound, 'leech gaiters' may be worn. These are very long closely-woven cotton stockings, passing over the socks and under the ordinary boot and clothing.

WOUNDS FROM FLEA BITES.—Flea bites are recognised by the appearance of small darkish red spots, surrounded by a circle of paler colour. It is well to become familiar with the ordinary appearance of flea bites, as they have sometimes been mistaken for various eruptions accompanying different kinds of fever, or *vice versâ*. Vinegar and water is the best application to allay the irritation from flea bites, and cleanliness is the best means of preventing their swarming in Indian houses, which at certain seasons of the year is so often the case.

WOUNDS FROM BUG BITES.—These insects cause an itching swelling, sometimes red, sometimes white, almost resembling the musquito bite. Vinegar and water is the best application. Taking furniture to pieces, and placing the ends in boiling water, is the best method of destroying bugs. Pouring turpentine occasionally between the joints, is the best method of preventing their re-accumulation.

WOUNDS FROM LICE.—Lice bites present an itching whitish swelling. Lice generally inhabit the hairy scalp, laying their eggs (called *nits*) near the roots of the hair. A sure and easy method of killing lice is washing the head with solution of carbolic acid (one part of acid to fifty parts of water). Or the hair may be saturated with oil, which kills the lice by obstructing their trachea, or breathing apparatus, and thus stopping respiration. Or carbolic acid and oil may be used together in similar proportions. But neither measure may suffice to kill the eggs. If lice still appear after using carbolic acid and oil, the head should be shaved, and a mixture of equal parts of pomatum and mercurial ointment may be rubbed on the scalp every other day for three days, an oilskin cap being worn in the meantime.

CHAPTER IV.

PREGNANCY AND LABOUR.

As females in India frequently find themselves without skilled assistance, the following remarks on Pregnancy and Labour are considered advisable.

PREGNANCY.—The pregnant condition in women lasts forty weeks, and may be in ordinary cases thus calculated. Supposing the monthly flow to have last appeared on the 28th of December, continuing four days, reckon forty weeks from the day after its ceasing, or from the 1st of January. This will be the 8th of October, within a day or two of which date the woman will be confined. During all this period the general condition of the pregnant woman is one of fulness or plethora, the pulse is quicker and stronger, and there is a general excitation of the system. Well-marked sympathies are also excited in various organs, and serve as the signs and symptoms of pregnancy enumerated below.

1. *Morning sickness*, usually commencing about one month after conception, sometimes earlier. 2. *Cessation of the monthly flow*, which, however, in exceptional cases may not occur. 3. *Enlargement of the breasts*, generally after the first month; sometimes after the first few days. 4. *Dark appearance and soreness of the nipples*, about the third month. Sometimes (usually at a later period) *oozing of milky fluid.* 5. *Quickening;* being the first movements of the child, usually felt about the beginning of the fifth month, and often attended by fainty feelings. 6. *Variations in temper and disposition, and capricious appetite*, the woman

often showing a desire for special, and sometimes improper, articles of diet. 7. *Enlargement of the abdomen*, becoming apparent about the commencement of the third month. 8. *Pulsation of the child's heart*, which resembles the ticking of a watch under a pillow; heard first about the fifth month. 9. *Movement of the child*, which may be distinctly felt after the sixth month, on placing the cold hand over the lower part of the bowels.

There are still some other signs of pregnancy, to be detected in doubtful cases by professional examination; but ordinarily, the above are quite sufficient to decide the question. Frequently, some of these signs are so exaggerated as to assume the proportions of a temporary disease (*vide* p. 307): at other times they are simply present, without producing much annoyance.

Unless other ailments (*vide* p. 307), or unless any of the signs mentioned above, prevail, to the extent of becoming more or less serious inconveniences, or complaints, pregnancy being a natural condition, the general manner of living, if healthy, need not be altered. In ordinary cases, moderate exercise and exertion is not prejudicial, provided care is taken not to lift heavy weights, nor to strain the body. If the pregnant woman is exposed to sudden strains, or to shaking or jolting, as from jumping, or missing a step when going down stairs, or from running, or from riding in a rough vehicle or on a shaking railway, the womb may be excited to premature action, and *miscarriage* (*vide* p. 314); or other evils, such as misplacement of the child (*vide Cross Birth*, p. 568) are liable to occur. Again, as the difficulties and dangers of any disease are greatly increased if it occurs during pregnancy, any unhealthy pursuit should be discontinued, and special attention should be paid to live in fresh air, and to personal cleanliness. It is especially deleterious for a pregnant woman to sleep in a badly-ventilated apartment. The clothing should be warm but easy. Stays, if worn, should be enlarged by the insertion of a gore of elastic in each side, and if there is a steel in front, it should be removed. The breasts should have plenty of room, and if tender or irritable should be treated as directed at p. 311. As a rule, in ordinary healthy pregnancies, no kind of medicine is required.

LABOUR.—Labour is the common term for a confinement or delivery. It usually takes place at the end of the ninth month, or at the expiration of 280 days from the time of conception. If the birth of the child takes place before six months, it is called an abortion or miscarriage (*vide Miscarriage*, p. 314), and when between six and nine months, it is known as *premature labour*. A full-time labour, as a rule, is a safe and natural process, and attended with very little danger to either mother or child. The signs of *approaching* labour are a sinking or lessening of the size of the abdomen, frequent desire to make water, and a mucous discharge, all of which may occur some hours, or even a day or two, before labour pains commence.

In the first place, on the symptoms of *approaching* labour, the patient's bed should be prepared, and a hard or horse-hair mattress is preferable to any other kind. On this, over the usual blanket and sheet, there should be placed, first a piece of oiled cloth or india-rubber sheeting, then on this 'guard,' a blanket folded four times, then a sheet doubled in similar manner, which is called the 'draw sheet.' All this is intended to absorb moisture and water, and to prevent the mattress, on which the woman has to lie afterwards, becoming wet. Care should be taken that there is a slight declivity from the shoulders downwards, lest in case of bleeding, or from a large quantity of 'waters,' the patient may be made uncomfortable. After the labour is over, and the oiled cloth and extra blanket and sheet are removed, the bed should be quite dry, and fit for the woman to repose on. A long towel should also be attached to the foot of the bed for the purpose afterwards indicated.

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the natural expulsatory efforts of the muscles concerned. The time of labour varies from six to twelve hours, being generally longest in those having a child for the first time. In at least 95 cases out of every 100 the head of the child first emerges, the rest of the body soon following. In the absence of medical assistance, the main objects of care are: *first*, to support the *perinæum*, or that part of the person of the mother exposed to pressure as the head passes, which otherwise might be torn or lacerated by the violence of the labour pains (*vide* p. 558). This support is to be afforded by applying the hand covered with a napkin in a moderately firm yet yielding manner. *Secondly*, to free the child's mouth from all discharge or mucus. *Thirdly*, to see that the womb well contracts as soon as the child is born. If the womb is well contracted, it may be felt in the lower part of the bowels in the shape of a *round hard ball.* If the womb cannot be thus felt, hæmorrhage or bleeding may occur, and firm pressure should be made with the hand, which will induce contraction. *Fourthly*, to divide the navel string, as described at p. 672.*

In from ten to twenty minutes after the child is born the *after-birth* comes away, but it is sometimes longer descending, and the cord must not be pulled to hasten its progress. The expulsion of the after-birth is attended with some renewal of pains, and a bloody discharge frequently occurs, after it comes away, which, if profuse, amounts to *hæmorrhage* (*vide* p. 568). In some cases the after-birth presents at the orifice, but does not pass out. It may then be *twisted round*, and gradually extracted.

During the labour thirst may be relieved by cold water and a little tea, or, in prolonged cases, beef-tea may be taken at intervals; but solid food is not desirable, as it may cause vomiting. When the pains are very severe, or the labour long, fifteen grains of chloral may be taken, to be repeated in

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* For the general treatment of infants after birth *vide* Chap. V.

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sional pressure with the hand over the womb, both to induce contraction, and to ascertain if the organ remains well contracted in the shape of a hard round ball. After the adjustment of the bandage all soiled clothing should be taken away; the parts should be wiped dry and a dry warm napkin applied, and the woman should be allowed to lie still for an hour and a half, or for a longer period should any bleeding have occurred. If this happens, the woman should be treated as detailed at p. 569 (*vide* the measures to be adopted for bleeding *after* delivery), and the child should be put to the breast. It should however be understood that there is often some loss of blood, so that a slight appearance of the kind need not excite alarm, especially if the womb can be felt hard, round, and firm. It should be recollected that nothing is more improper or more likely to give rise to unpleasant symptoms, of which bleeding is one, than permitting a patient to sit up soon after her confinement. If, after the birth of a child, the mother is very much exhausted, a cup of strong tea, not too warm, is the best stimulant. After the woman has well rested, and perhaps slept a short time, the private parts should be washed with milk and water and another dry napkin applied. Usually at this time, some bloody discharge, or even clots of blood, may be found. This washing should be repeated several times daily; until, after four or five days, when the parts become less tender, tepid vinegar and water, in the proportion of one ounce of vinegar to ten ounces of water, may be substituted for the milk and water; or glycerine soap may be used. As a female after a confinement is susceptible to cold, care should be taken to avoid exposure to draughts, although it is essentially necessary that the chamber be maintained cool and airy. All excitement from visitors should be avoided. None but the husband, and the necessary attendants should be admitted into the room for the first three days at least; and especial care should be taken that no one approaches the chamber from whom the occupant could incur

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Attention must also be directed to the state of the discharge called *lochia*, or, in popular language, 'the cleansings.' At first this discharge is red like blood, then becomes thin and watery, changing colour to greenish yellow, and at last appearing only like soiled water. The duration of this discharge varies a good deal. In some patients it ceases naturally, and without bad effects, a few days after delivery. In other cases it does not cease until the end of three weeks or a month. In quantity, also, it varies much. It has a peculiar odour impossible to describe, but which is more powerful in some instances than in others. As this secretion is necessary, the sudden interruption is generally attended with evil consequences; such as suppression of milk, or fever (*vide* p. 220).

The first passage of this discharge is commonly accompanied by more or less pain called 'after pains.' The commencement of the after pains, which depend on contraction of the womb, is generally felt about half an hour after delivery, and they ordinarily cease in thirty or forty hours, though they may continue longer. During their presence the discharge increases, and black clots of congealed blood are not unfrequently expelled; especially when rising in bed to take food, or make water. After pains are, within certain limits, salutary; they prevent bleeding, diminish the size of the womb, and expel its contents. The application of the child to the breast often brings on or aggravates the after pains. Unless more than ordinarily severe, no medicine should be given; but if very troublesome, an opiate, as chloral (Recipe 75), may be administered, and the bowels may be fomented.

In ordinary cases the breasts remain quiescent for about twenty-four hours, or longer in first confinements, but soon after that begin to enlarge, with stings of pain, their substance becoming heavier and more tense. This depends on what is called the 'draught,' or the rush of blood to the breasts, to be converted into milk. The patient may suffer from shivering, heat of skin, pain and soreness of the breasts, and the pulse may be quickened until the secretion of milk takes place. Unless some bleeding occurs, and the child is put to the breast, as recommended at p. 569, to secure contraction of the womb, the breasts should not be interfered with in first confinements for six or seven hours, when the infant may be applied. But if the breasts become rapidly full, as sometimes happens in persons who have borne children, the child may be applied at an earlier period. If the breasts are flat and limp, frequent application of the child to the breast is not desirable, as fruitless sucking renders the nipple hot, irritable, and tender. If much feverishness attends the secretion of milk, saline purgatives as before mentioned (Recipe 2), and citrate of magnesia draughts (p. 14), should be given, while the breasts may be fomented, and they may also be *gently* rubbed with salad oil every four or five hours. If the nipples are short and badly formed, or, as sometimes happens, the breasts swell so much as to prevent the child seizing the nipples, they should be drawn out by a breast-pump; or a larger child or a grown-up person should suck them first. Or a bottle having been filled with hot water should be quickly emptied, and the mouth of the bottle applied over the nipple. A slight vacuum being formed by the heat in the bottle, the nipple will rise into the mouth. A better plan of using the bottle is to cut the end off a soda-water flask, when the nurse's mouth may be applied to the cut end, and the nipple may be sucked up into the neck of the bottle.

The first milk secreted is a watery fluid with yellow streaks in it. It is called *colostrum*, and is supposed to act as a purgative to the infant (*vide* p. 676). After twenty-four hours, the milk becomes whiter, opaque, and has a sweet pleasant taste.

Each time the child is about to suck, the nipple should be cleaned with a soft rag and plain water; and again, when the child leaves off sucking. The nipples and breasts should also be washed with warm water and soap, morning and evening. By such care, the chance of sore nipples and consequent bad breasts (*vide* pp. 83, 84, 85) will be avoided.

During the first week the mother should give suck while lying down. She can turn to one side, and supporting herself on her elbow, let the nipple fall into the mouth of the infant. Both breasts should be equally used.

The mother should remain in bed till after the twelfth day, and afterwards recline on a couch. She may be shifted from one side to the other of the bed; but should not get up. Those who have any tendency to womb affection, should remain recumbent for a full month. If any bloody discharge occurs, after getting up, it is a warning to go to bed again.

When the mother resumes her usual dress, she must take care that the corset is so arranged, as to prevent pressure upon, and give support to, the breasts. She must always remember that her milk will be affected by any indiscretion either in food or habits, and that, unless her health is maintained by wholesome diet and pursuits, her infant will certainly suffer.

The foregoing relates chiefly to perfectly natural and straightforward confinements, but other circumstances may occur which are now briefly noticed.

1. *Cord round the neck.* This occurs once in about twelve cases. Frequently it is not of much consequence, as when the cord is round the child's neck, it is usually more than ordinarily long. It should be loosened a little, by very gentle traction, and the shoulders should be allowed to slip through the loop. Or perhaps, if the cord is very long, it may be slipped over the child's head. In some cases it has been found necessary to *saw* the cord through, to prevent the child being strangled. When so necessary, the cord should be *sawn* through with the finger nail, and *not cut*, or it will bleed profusely.

2. *Presentation of the breech.* This occurs about once in every 60 cases, and the labour is always tedious because the infant, being doubled at the haunches, requires a larger space. As a general rule no interference is required until the breech and feet are born, after which the case becomes converted into a footling one, and must be treated as detailed at p. 567, the body being turned if necessary, so that the toes are directed to the back of the mother, and the delivery being hastened or not, according as pulsation is absent or present in the cord.

3. *Twin births.* This occurs about once in every 70 cases. The presence of twins can seldom be detected before the labour, the increase of size being no true criterion, the same mother sometimes appearing as large when pregnant with one child, as she was formerly with two, owing to the presence of a large quantity of water. Sometimes by touching accurately over the womb, the presence of separate bodies can be distinguished. Sometimes the beating of two hearts at different points may be heard, which is the only positive sign. In twin cases, the presentation generally varies, the first being the head, and the second a foot case, or the reverse. After the birth of the first child, the presence of a second is known by the very slight reduction in size of the womb, which often appears nearly as large as before. Sometimes the after-birth of the first child comes away before the birth of the second infant, sometimes not till afterwards, and attempts should not be made to remove it, as it occasionally happens that there is only one after-birth for both infants. Having discovered that it is a case of twins, after the birth of the first infant, the womb should be stimulated to contract by keeping up a grasping movement of the fingers and thumb placed on the lower part of the bowels. Sometimes the birth of the second child follows that of the first in so short a space as ten minutes, but on other occasions there is no recurrence of pains for some hours after the birth of the first

child. Under such circumstances, the woman should be allowed to rest until pains return, and she may take a little refreshment, as cool tea or arrowroot; the precaution being taken to examine frequently, lest bleeding may be going on. The progress of the second labour is usually quicker than that of the first, the soft parts having been already freely dilated. After the birth of the second child and the passage of the after-birth, especial attention must be paid to the contraction of the womb, which having been much distended is the more likely to relax, and so permit bleeding to take place. The womb should be pressed with the hand until it can be grasped as a firm hard ball, and the bandage should be applied as mentioned at p. 560.

4. *Presentation of the feet.* One or both feet may come first, which happens once in about 100 cases. The birth is generally speedy and safe for the mother, but not always so for the child, which is apt to suffer from the circulation of the cord being obstructed by pressure during the birth of the head. Footling cases should not be hastened in the early stage, as the longer the buttocks or breech are detained the greater will be the dilatation of the parts, and the birth of the head will be more easily effected. When the breech is expelled, the cord should be examined, and, if the pulsation of the cord has ceased, the birth of the shoulders should be hastened by pulling the body steadily down during the next pain. To have the toes of the infant turned to the back of the mother is the most favourable position for the birth of the head; and when the breech is expelled, if the toes are turned forward, the assistant should seize the breech in both hands, and during the next pain endeavour to turn the child round, while the birth of the shoulders is expedited. If circulation of blood is restored in the cord after the birth of the shoulders, there is little cause for anxiety for the safety of the child; but if there is no pulsation in the cord, it is necessary to assist at every pain, and hasten the delivery of the head by

pulling the shoulders down. The head being born, the assistant should examine the cord, and, if it pulsates, the child should not be separated for a few minutes until it begins to cry. If there is no circulation in the cord the infant should be treated as detailed for the apparently born dead, at p. 673.

5. *Presentation of the face.* Instead of the top of the head, the face may present at the outlet. This is not very common, happening once in about 230 cases. When it does occur the labour is always more difficult and protracted. The life of the child is seldom in danger, but when born the face is always much swollen and disfigured, and unless the mother is prepared for this, the appearance may give a severe shock. In the absence of medical aid, it will be best to leave a face presentation alone, and wait patiently for the natural termination.

6. *Presentation of the hand, commonly called* '*cross birth.*' Presentation of the hand, or some portion of the upper extremity, as the elbow or shoulder, occurs once in about 230 instances. When this happens, the assistance of a medical man is urgently required, as the operation of turning the child will probably be necessary.

7. *Hæmorrhage or bleeding.* Hæmorrhage or bleeding may occur either *before* or *after* the birth of the child, but fortunately does not happen to an alarming extent more than once in 300 cases. Bleeding occurring *before* the birth of the child, generally depends on an unfavourable position of the after-birth, which is seated over, or too near the mouth of the womb, so that, as the latter dilates or increases in size, the vessels of the after-birth are torn. This kind of bleeding may occur at any time after the sixth month of pregnancy, but is more frequent between the eighth and ninth month, when the dilatation of the neck of the womb is greatest. In every case of bleeding before the birth or during pregnancy, absolute rest is necessary; the patient's

room should be well aired, her food should be farinaceous only, her drink toast and water, or weak cold claret and water, and cold applications should be made to the privates. When recurring bleeding happens during the last months of pregnancy, the person should obtain medical advice as soon as possible, and the presence of a surgeon during the labour should be insisted upon, as, should bleeding occur during the confinement, the delivery will require to be expedited; involving probably the operation of turning the child, which requires great energy, skill, and experience.

When bleeding occurs *after* delivery, it may happen *immediately*, either before or after the expulsion of the after-birth, or it may come on some hours or even days after the confinement, when it is called *secondary hæmorrhage*. When bleeding occurs immediately after delivery, it generally depends on feeble or irregular contraction of the womb. When the after-birth separates from that organ, loss of blood to some extent is the natural consequence, nor is the woman injured by a moderate loss, such as eight to ten ounces. But if the quantity exceeds such amount it produces weakness, fainting, and an alarming condition of prostration, the woman being pale, cold, and gasping for breath. Under such circumstances, the womb will be found soft and relaxed, and to induce it to contract firm pressure should be made over the lower part of the bowels, and if possible the womb should be firmly grasped in the hand through the skin of the lower part of the bowels. Cloths wet with cold water should be applied to the privates, iced or cold water should be given to drink, and the child should be put to the breast. Probably when the soft and relaxed womb is grasped or pressed, the blood contained within will be expelled, causing a fresh flow, and inducing attendants to think there is fresh mischief being done. But the blood collected in the womb has already escaped out of the blood-vessels, and is therefore useless to the system, and it must be expelled from the womb before that organ can contract. In addition to the above measures, or if they fail, twenty grains of ipecacuanha should be given in a wine-glassful of water; cold water may be suddenly poured on the bowels from a height of two or three feet; and if a syringe is at hand, cold water may be injected into the passage. In the meantime, if possible, the assistance of a medical man should be obtained, as an operation may be required.

When hæmorrhage occurs some hours or days after delivery, it may depend on partial relaxation of the womb: or, on the retention of some part of the after-birth; or, of a clot of blood preventing perfect contraction, and which the after pains are insufficient to expel; or it may arise from fright or excitement. The application of cold wet cloths externally, and the injection of cold water are the most valuable means of relief, and the latter will facilitate the expulsion of anything which has been retained.

The pallid countenance and evident prostration of strength which arise from bleeding, render attendants anxious to administer wine or other stimulants. These however may, if given in too large quantities, increase the bleeding, by exciting the action of the heart, and the force of the circulation. Wine, or brandy and water, must therefore be given cautiously, and in very small quantities at a time, more with the view of refreshing the patient, than of increasing the force of the pulse. Often a little weak claret and water will be more desirable, especially while bleeding is actually going on. If the patient is cold, the limbs should be chafed, the face may be sprinkled with cold water, a mustard poultice may be put on the chest, and smelling salts may be used. It must be recollected that the patient is not on any account to be raised into a sitting or upright posture, which would probably be followed by fatal fainting; and that perfect quiet is absolutely necessary.

[In any case of bleeding of the kind, Recipe 63 should, if possible, be procured and used.]

Weird or 'milk-fever,' *Sore Nipples*, *Abscess of the Breast*, and *Puerperal Fever*, sometimes occurring during suckling, are described at pp. 220, 84, 83, 220.

In addition to the above ailments, there are two other maladies, and one accident, to which lying-in women are occasionally subject, and which, although comparatively rare, require mention, viz.: *Convulsions*, *Phlegmasia Dolens*, and *Laceration of the Perinœum*.

Convulsions may occur either before, during, or after labour. In the absence of medical advice, all clothing should be loosened, the patient should be allowed plenty of fresh air, and the face should be sprinkled with cold water. If the tongue is likely to be bitten, a piece of soft wood should be held between the teeth. If the head is hot, cold applications (*vide* p. 592) should be used to the forehead. An injection (Recipe 105) should also be given.

Phlegmasia Dolens consists of a painful elastic swelling of one or both legs, beginning generally in the groin and thigh, and thence extending downwards. It may come on from one to five weeks after delivery, and is commonly ushered in by shivering, fever, thirst, quick pulse, nausea, furred tongue, and pain in the loins. The swollen part is hot and tender, and presents a pale, shining appearance, while the power of moving the limb is nearly lost. Such cases generally do well, although recovery is tardy, and the limb may be stiff long afterwards, with tenderness, and perhaps the feeling of a cord beneath the skin in the course of the femoral vein, down the inner part of the thigh. When this affection occurs, the swollen part should be continually fomented with poppy-head infusion; saline purgatives (Recipe 2) should be given to open the bowels; and saline mixture, No. 71, should be taken to act on the skin and urine, while pain may be relieved by opiates. After the acute stage, when pain, tenderness, and fever subside, the swollen parts should be gently rubbed twice daily with soap liniment, or with brandy and salad oil in equal proportions, and the limb should be enveloped in flannel. Generous diet, wine, and tonics will also be necessary.

[Iodide of potassium mixture (Recipe 45) should also be procured and given, as soon as the acute stage of the malady is over. And soap and opium liniment will be a better local application than the brandy and oil mentioned above.]

Laceration of the Perinæum. The necessity of supporting the *perinæum*, or that portion of the person of the mother exposed to pressure, as the head passes, has been mentioned at p. 559. But in first labours, notwithstanding the necessary support, some amount of laceration or tearing of the soft parts often occurs. This is of little consequence, as it quickly heals without leaving any bad effects, and no treatment beyond cleanliness is required. But in exceptional cases the tearing may be greater, and if the wound exceeds an inch, the patient should be kept in bed with her legs tied together, the wound being frequently cleansed until healing occurs. In a still smaller number of cases the rupture may extend to the anus, in which case a surgical operation is required.

APPENDIX TO CHAPTERS II. III. AND IV.

PRESCRIPTIONS.

THE prescriptions which can be made up from the small medicine case designed to accompany this volume, or from the articles easily procurable in the bazaars, are placed *first* under the following different headings, and are separated by a double line from the prescriptions which must be procured from chemists. The *first* prescriptions are those usually referred to in the *large* type of the preceding two chapters; the others, to be procured from chemists, are those referred to in the *small* type.

Purgatives, Aperients, and Laxatives.

The above terms sufficiently denote the action of these kinds of medicines. But many of the class have distinct actions on different parts of the internal organs, and are therefore of use under different conditions of disease. For the peculiar action of each medicine, Chapter I., p. 8, DESCRIPTION OF MEDICINES, should be consulted.

1. Take of Podophyllum	grain, one quarter.
„ Compound Rhubarb Pill .	grains, two and a half.
„ Extract of Hyoscyamus .	grain, one and a quarter.

Mix well, and make into one pill. To be coated tasteless.

The pill above prescribed may be taken at night, and, if not acting sufficiently, an aperient draught, as Recipe 2, or citrate of magnesia (*vide* p. 14), or some mineral water, or a Seidlitz powder, may be taken

other hand, it is sometimes r
prescriptions) as a substitute
in the medicine chest, or proc
tion must therefore be accepte
always the most desirable. B
all times. If, therefore, anyo
which experience has shown a
ferred, be generally used when

2. Take of Sulphate of Sod
   „ Tincture of Ging
   „ Water, distilled

Mix well, and make a dra
alone, or which may be used in
taken overnight. If a quicker
taken three or four hours after
soda may be increased by one or
not sufficiently powerful; or, if t

3. Take of Sulphate of Soda
   „ Quinine .
   „ Sulphate of iron (
     of the bazaars)
   „ Water, distilled

Mix well, and make a mixtur
hours. A tonic and aperient. U
amenorrhœa.

5. Take of Sulphate of Magnesia . . .	drachms, six.
„ Tincture of Digitalis . . .	minims, eight.
„ Camphor Mixture . . .	ounces, two.

Mix well, and make a draught. An aperient and sedative. Useful in asthmatic attacks with constipation; also for apoplexy.

6. Take of Bicarbonate of Magnesia . .	grains, ten.
„ Bicarbonate of Soda . . .	grains, eight.
„ Compound Senna Mixture . .	ounce, one.

Mix well, and make a draught. An antacid and aperient. Useful in dyspepsia and liver affections.

7. Take of Podophyllum Powder . .	grains, four.
„ Dilute Nitric Acid . . .	drachms, two.
„ Water distilled	ounces, three and a half.

Mix well, and make a mixture. Dose, a tea-spoonful in a wine-glass of water three times a day. In liver affections.

8. Take of Blue Pill	grains, five.
„ Calomel	grains, five.

Mix well, and make into two pills. A strong purgative.

9. Take of Blue Pill	grains, five.
„ Compound Extract of Colocynth .	grains, five.

Mix well, and make into two pills. A moderate purgative.

10. Take of Compound Extract of Colocynth	grains, five.
„ Compound Rhubarb Pill . .	grains, five.

Mix well, and make into two pills. A mild purgative.

11. Take of Calomel	grains, five.
„ Compound Jalap Powder . .	drachm, one.

Mix well, and make a powder. A strong purgative, producing watery stools.

12. Take of Podophyllum Powder . .	grains, three.
„ Compound Extract of Colocynth	grains, thirty.
„ Ipecacuanha Powder . .	grains, four.

Mix well with a little gum, and divide into twelve pills. Dose—one twice a day. In liver affections, and for constipation.

13. Take of	Extract of Aloes (Glacial)	grains, two.
„	Blue Pill	grains, three.
„	Extract of Conium	grains, three.

Mix well, and make two pills. A mild aperient.

14. Take of	Pill Aloes and Myrrh	grains, three.
„	Blue Pill	grain, one.
„	Extract of Taraxacum	grains, two.
„	Extract of Stramonium	grain, one half.

Mix well, and make into two pills. Useful in asthma.

15. Take of	Sulphate of Iron	scruple, one.
„	Extract of Aloes (Glacial)	grains, fifteen.
„	Powdered Rhubarb	scruple, one.

Mix well, and make twelve pills. Two for a dose. A good aperient for weakly constipated persons.

16. Take of	Powdered Rhubarb	ounce, one.
„	Powdered Ginger	ounce, one half.
„	Carbonate of Magnesia	ounces, three.

Mix well in a mortar. This compound is known as 'Gregory's Powder.' The dose is half a tea-spoonful to a tea-spoonful, in a little peppermint water. It is a useful stomachic laxative in cases of indigestion and acidity of the stomach.

It may also be used for children from two to three years old with great advantage in ten- or twelve-grain doses, when a mild purgative is required. It may be given at night, and be followed by a tea-spoonful of castor oil in the morning.

Tonics.

Tonics are medicines which impart 'tone' or strength to the system, and are therefore especially useful during convalescence from exhausting maladies, and in most debilitated conditions. Tonics act without stimulating the system, and are thus different from the class of medicinal agents called 'Stimulants,' of which ether and alcohol may be taken as the type. One variety of tonics—namely, the preparation of iron, owes its virtues to its power of supplying a deficient element of the blood (*vide* p. 51).

17. Take of	Quinine	grains, twenty-four.
„	Sherry Wine	ounces, two.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day.

18. Take of	Quinine	grains, twenty-four.
„	Lemon Juice (fresh)	drachms, two.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day.

19. Take of	Isinglass	drachms, two.
„	Sugar, White	drachms, two.
„	Brandy	half a wine glass, *or*
„	Sherry	one glass.
„	Nutmeg	a pinch.
„	Boiling Water	ounces, four.

Make a draught. A good stomachic tonic in diarrhœa.

20. Take of	Quinine	grains, twenty.
„	Dilute Sulphuric Acid	drachm, one.
„	Tincture of Ginger	drachm, half.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three or four hours.

21. Take of	Citrate of Iron and Quinine	scruples, two.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three or four hours. Wash the mouth after taking the medicine.

22. Take of	Tincture of Iron (*Steel Wine*)	drachms, two.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—Two table-spoonfuls three times a day. For anæmia and debility. Wash the mouth after taking the medicine.

The preparation known as Carbonate of Iron is also a good remedy for those objecting to the taste of the tincture of iron. It may be taken in five- to ten-grain doses, in water; or it may be taken as a powder mixed with sugar, or alone; or, being almost tasteless, it may be sprinkled on the food. Iron lozenges may also be procured from the chemists.

23. Take of	Sulphate of Iron	grains, twelve.
„	Dilute Sulphuric Acid	drachm, one.
„	Water, distilled	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. For anæmia and debility.

24. Take of	Dilute Nitric Acid . . .	drachms, two.
„	Tincture of Ginger . . .	drachm, one.
„	Water, distilled, or Infusion of Orange Peel . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. As a tonic after dysentery or fever.

Note.—Infusion of orange peel is made by steeping one ounce of the outer part of the rind of orange in two pints of boiling water until the water is cold, and then straining.

25. Take of	Sulphate of Iron . . .	grains, nine.
„	Sulphate of Quinine . . .	grains, twelve.
„	Dilute Sulphuric Acid . .	drachm, one.
„	Sulphate of Soda . . .	ounce, one.
„	Sugar, White	drachms, two.
„	Water, distilled . . .	ounces, twelve.

Make a mixture. Dose—two table-spoonfuls two or three times a day. For painful menstruation with constipation. As a tonic aperient, in affections of the liver or spleen.

26. Take of	Syrup of the Iodide of Iron .	ounce, one.

Dose—thirty drops three times a day in a wine-glassful of water.

27. Take of	Arsenical Solution (Fowler's) .	minims, forty.
„	Water, distilled . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. This medicine should be taken about a quarter of an hour after meals. As a tonic; also used for the cure of ague, and in skin disease.

After arsenic has been taken for some time (varying with different people from days to weeks), it produces certain characteristic effects. These are colicky pains in the bowels, and sometimes diarrhœa. There is also watering, itching, and irritation about the eyes, the whites of which organs become 'blood-shot,' and the eyelids feel stiff. These effects on the eyes show that the system has been brought under the influence of the medicine. In order to avoid pain in the bowels, and to prevent the arsenic passing away with diarrhœa, before the influence of the medicine has been well established in the system, arsenic should be taken after meals. By this procedure it is mixed with the food, and prevented coming into immediate contact with the internal coats of the stomach.

28. *Liebig's Raw Meat Soup.*—Take half a pound of raw meat, and mince fine. Add three-quarters of a pint of water to which has been added four drops of strong muriatic acid and half a salt-spoonful of salt.

Stir well, and allow it to stand one hour. Strain through a fine sieve. This preparation is often taken when other food is refused. It should be made fresh once or twice daily, and given cold. (Muriatic acid is also called hydrochloric acid.)

Expectorants.

Expectorants are medicines which, acting on the lining membrane of the air-passages (bronchial tubes) leading to the lungs, and also, in some degree, on the general system, facilitate the passage of fluids secreted in the lungs and in the tubes leading to the lungs, in such maladies as cough, catarrh, bronchitis, and asthma.

29.	Take of Aromatic Spirits of Ammonia .	drachms, two.
,,	Spirits of Nitric Ether . .	drachms, four.
,,	Tincture of Ginger . .	drachm, one.
,,	Water, distilled . . .	ounces, five and a half.

Make a mixture. Dose—two table-spoonfuls every two or three hours. For asthmatic attacks and chronic bronchitis.

30.	Take of Camphorated Tincture of Opium (*Paregoric*) . . .	drachms, three.
,,	Aromatic Spirits of Ammonia .	drachms, two.
,,	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every two or three hours. For asthmatic attacks and chronic bronchitis.

31.	Take of Camphorated Tincture of Opium (*Paregoric*) . . .	drachms, three.
,,	Ipecacuanha Wine . . .	drachms, two.
,,	Spirits of Nitric Ether . .	drachms, three.
,,	Water, distilled . . .	ounces, seven.

Make a mixture. Dose—two table-spoonfuls every three or four hours. For catarrh, bronchial, and lung affections. This is a useful medicine in smaller doses for children, for cough, bronchitis, inflammation of the lungs, and in the first stages of croup. The dose for a child one year old is one tea-spoonful; two years old, a tea-spoonful and a half.

32.	Take of Camphor	grain, one.
,,	Powdered Ipecacuanha . .	grains, three.

Mix well with a little gum, and make into a pill. May be taken every two hours for asthma.

33. Take of Tartar Emetic	grain, one.
„ Camphorated Tincture of Opium (*Paregoric*)	drachms, two.
„ Water, distilled and boiling .	ounces, twelve.

Make a mixture and allow it to cool. Dose—two table-spoonfuls every two or three hours. For bronchitis, pleurisy, laryngitis, and pneumonia.

34. Take of Camphorated Tincture of Opium (*Paregoric*) . . .	drachms, three.
„ Ipecacuanha Wine . . .	drachms, two.
„ Tincture of Scills . . .	drachms, two.
„ Bicarbonate of Soda . . .	scruples, two.
„ Water, distilled . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three or four hours. For catarrh and bronchial affections, especially when there are also dyspeptic symptoms or acidity of the stomach. It is a useful medicine for children in smaller doses for cough, bronchitis, or in the first stages of croup. The dose for a child one year old is one tea-spoonful; two years old, a tea-spoonful and a half.

35. Take of Carbonate of Magnesia . .	grains, twenty-five.
„ Peppermint Oil . . .	drops, two.
„ Water, distilled . . .	ounce, one.

Make a mixture. Dose—a tea-spoonful three or four times a day. In hooping cough, for a child one or two years old. Before using the mixture, the bottle should be well shaken. It is also useful for the sickness of pregnancy, when the whole may be taken at once as a draught.

36. Take of Sulphate of Zinc . . .	grains, two.
„ Camphorated Tincture of Opium (*Paregoric*) . . .	minims, sixty.
„ Water, distilled . . .	ounce, one and a half.

Make a mixture. Dose—a tea-spoonful every four hours. For a child from one to two years old, for hooping cough.

37. Take of Extract of Conium . . .	grains, three.
„ Water, distilled . . .	ounce, one and a half.

Make a mixture. Dose—a tea-spoonful three times a day. For a child from one to two years old with hooping cough. Shake the bottle before using.

Alteratives.

Alteratives are medicines given either to alter the condition of the blood: or, in larger or less frequently repeated doses, to alter the state of the secretions of the liver and bowels. This class comprises a large number of medicines, of which those mentioned in the following prescriptions are some of the principal.

38. Take of	Compound Ipecacuanha Powder (*Dover's powder*)	grains, ten.
„	Quinine	grains, three.
„	Ipecacuanha Powder	grain, one.

Mix well, and make a powder. To be taken at bedtime. For dysentery, diarrhœa, and in liver affections. It may in some cases be necessary to omit the ipecacuanha powder from this prescription, if it causes undesirable nausea or sickness.

39. Take of	Compound Ipecacuanha Powder (*Dover's powder*)	grains, five.
„	Quinine	grains, three.
„	Ipecacuanha Powder	grain, one.

Mix well, and make a powder. Dose—one three times a day. For dysentery, diarrhœa, and in liver affections. It may in some cases be necessary to omit the ipecacuanha powder from this prescription, if it causes undesirable nausea or sickness.

40. Take of	Compound Ipecacuanha Powder (*Dover's powder*)	grains, two.
„	Quinine	grain, one.

Mix well, and make a powder. Dose—one night and morning for a child two years old. For a child one year old, half the quantity. For a child six months old, one quarter. Useful for infantile diarrhœa with fever.

41. To make *Lime Water.*—Place one ounce of quick-lime in two quarts of pure cold water. Let it stand for a few hours, and pour off the clear liquid for use. Dose—from one to three ounces, several times daily. with a child's food. Useful in teething, diarrhœa, indigestion, cholera.

43. Take of Calomel . .
" Extract of Opiu

Mix well, and make into a pil
Used when the specific action of
acute inflammations.

Calomel (*Hydrargyri subchlor*
tasteless and insoluble in water.
from sulphate of mercury and co
state has little or no action on th
mated with some powder or other
into a state of very fine subdivisio
comes possessed of powerful medi
esteemed one of the most important
used than formerly, it must still be
peutical value. Calomel is possesse
tributed to mercury. In small dose
grain for a child, it is purgative, a
ducing a flow of bright yellow bile.
exerts a cooling effect, diminishing t
in the blood. In smaller and freque
every three or four hours for an adult,
opium (as in Recipe 43), act as a pur
it produces the more characteristic sp
denced by a metallic taste in the mout
and afterwards by salivation, as descri
these

human frame, it is beneficial in many maladies, of which biliary and liver derangements, constipation, apoplexy, dropsical affections, and especially venereal (over which it has a peculiar specific power), may be mentioned.

It should be a rule before prescribing calomel, or indeed any preparation of mercury, to enquire if there be any peculiarity of constitution permitting very small doses of mercury to affect the system; for it occasionally happens, owing to some unexplainable constitutional idiosyncrasy, that even one dose of calomel or blue pill will produce salivation, and to such persons no preparation of mercury can be safely given. If ever calomel is given to children, it should be held in mind that this preparation produces in children unnatural-looking stools, having a greenish slimy appearance, and care must be taken that more mercurials are not administered with the view of correcting the condition they induce. The use of mercurials, more particularly when children are the patients, requires great care—so much so that some would not admit such medicines into a family manual. But the persons qualified to use a *Family Medicine Manual*, and a family medicine-chest, may be, after the cautions as above (repeated in various parts of this work), safely entrusted with the limited use of mercurials as here prescribed, and from which, if the directions are fairly carried out, much good will result, and no possible harm can ensue. In the use of calomel or other preparations of mercury, the truth as usual lies between two extremes: it is highly useful, but susceptible of abuse. The tribe of quacks have always found it profitable to inveigh against all forms of mercury, whilst many of them employ the most powerful of its combinations. The most useful and in the main harmless preparations are those here prescribed. A very useful preparation of mercury—viz. 'grey powder,' or *hydrargyrum cum cretâ*—has been rejected, as it has been found to become poisonous from the effects of Indian climate.

44. Take of Blue Pill	grains, two.
„ Extract of Opium . . .	grain, quarter.
„ Ipecacuanha Powder . .	grain, quarter.

Mix well, and make a pill. Dose— one every three or four hours. In dysentery, or bad diarrhœa.

This prescription, if taken sufficiently long, will, like Recipe 43, induce the specific action of mercury in the system. But it is not generally given for this purpose, Recipe 43 being the most quick and certain in its action.

45. Take of Iodide of Potassium . . .	drachm, one.
„ Water, distilled . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For syphilitic diseases.

46. Take of	Bromide of Potassium	drachm, one.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For convulsions and epilepsy.

Note. — Both iodide and bromide of potassium as contained in the two preceding Recipes (Nos. 45 and 46), after being taken for some time (days in some persons, weeks in others), may produce symptoms of cold in the head, sore throat, or an eruption of small pimples on the body. When this occurs the medicine should be stopped.

47. Take of	Powdered Rhubarb	scruple, one.
„	Sulphate of Soda	scruple, one.
„	Aromatic Spirits of Ammonia	drachm, one half.
„	Peppermint Oil	drop, one.
„	Water, distilled	ounces, two.

Make a draught. For acidity of the stomach, and in the sickness of pregnancy.

48. Take of	Solution of Potash	drachm, one.
„	Tincture of Hyoscyamus	drachms, two.
„	Tincture of Cinchona	drachms, two.
„	Infusion of Buchu	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. For chronic affections of the bladder.

49. Take of	Bicarbonate of Soda	drachm, one.
„	Tincture of Hyoscyamus	drachms, two.
„	Decoction of Pareira	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. For chronic affections of the bladder.

50. Take of	Tartaric (or Citric) Acid	drachms, two.
„	Aromatic Spirits of Ammonia	drachms, two.
„	Water, distilled	ounces, eight.

Mix, and allow effervescence to subside. Dose—two table-spoonfuls three times a day. For scurvy.

51. Take of	Bicarbonate of Soda	drachms, two.
„	Colchicum Wine	drachms, two.
„	Spirits of Nitric Ether	drachms, two.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For [illegible] or rheumatism.

52. Take of	Bicarbonate of Soda	drachms, two.
,,	Tincture of Rhubarb	ounce, half.
,,	Tincture of Ginger	drachm, one.
,,	Spirits of Chloroform	drachm, one.
,,	Water, distilled	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. Useful in jaundice.

53. Take of	Extract of Taraxacum	drachms, two.
,,	Dilute Muriatic Acid.	drachm, one.
,,	Infusion of Gentian	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. Shake the bottle before using. Useful in jaundice and for liver affections.

54. Take of	Dilute Nitric Acid	drachm, one.
,,	Dilute Muriatic Acid	drachm, one.
,,	Tincture of Ginger	drachm, one.
,,	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. In affections of the liver. After taking this medicine, the mouth should be well washed. Muriatic acid is also called hydrochloric acid.

55. Take of	Bicarbonate of Potash	drachm, one and a half.
,,	Water, distilled.	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. This prescription is also sometimes useful as a lotion for external use in skin diseases.

56. *Effervescing Draughts.*—These may be made as follows: Dissolve twenty grains of Bicarbonate of Potash in two ounces of water, and add fourteen grains of Citric Acid when about to be taken.

Or, dissolve seventeen grains of Bicarbonate of Soda in two ounces of water, and add ten grains of Citric Acid. For acidity of the stomach.

Or, dissolve two drachms of Bicarbonate of Soda in eight ounces of water, and place in a bottle. Dissolve one drachm of Tartaric Acid in four ounces of water, and place in another bottle. The dose is two table-spoonfuls of the Soda Mixture with one table-spoonful of the Acid Mixture. Useful in cases of fever, and in the sickness of pregnancy.

Effervescing Mixture with Chloroform.—Add to the Soda Mixture given in the last para. twenty minims of Chloroform. The Soda Mixture containing the Chloroform should be well shaken before being used. Very useful in the sickness and indigestion attending pregnancy, also for sea sickness.

Astringents are medicine
the system, diminish the se
also, when applied locally, co
blood-vessels, and prevent th
principal remedies of this cla
lead; acids, particularly galli

58. Take of Powdered Alum
„ Water distilled

Make a mixture. Dose—two
miscarriage, menorrhagia, chronic

59. Take of Dilute Sulphuric
„ Tincture of Ginge
„ Water distilled .

Make a mixture. Dose—two
miscarriage, or bleeding from the
mouth should be well washed out.

60. Take of Acetate of Lead
„ Tincture of Opium
„ Water distilled

Make a draught. To be taken
ing from the lungs, or *hæmoptysis.*

62. Take of Gallic Acid	grains, five.
„ Water, distilled . . .	ounces, two.

Make a draught. To be taken three times a day. For bleeding from the lungs or stomach, or in scurvy, diarrhœa, and dysentery.

63. Take of Acetate of Lead . . .	grains, three.
„ Extract of Opium . . .	grain, quarter.

Mix well, and make a pill. One to be taken three times a day. For almost any variety of bleeding or hæmorrhage. Also in diarrhœa and dysentery.

64. Take of Compound Chalk Powder with Opium	grains, five.
„ Bicarbonate of Soda . .	grain, one.
„ Powdered Alum . . .	grain, one.

Make a powder. To be taken every night, or in bad cases, every night and morning. For infantile diarrhœa and dysentery. Forty grains of compound chalk powder with opium (*Pulvis Cretæ Aromaticus* [*vel compositus*] *cum Opio*) contain one grain of opium. Therefore five grains of the compound chalk powder contain one-eighth of a grain of opium. The powder may be given to a child of one and a half to two years old. Half the powder at one year old; a quarter at six months.

65. Take of Powdered Extract of Opium .	grain, half.
„ Prepared Chalk . . .	grains, twenty-four.
„ White Sugar	grains, twenty-four.

Mix well, and divide into twelve powders. Dose—one every four hours for a child one year old. Half the powder at one year old; a quarter at six months. Each powder contains the twenty-fourth part of a grain of opium. For infantile diarrhœa and dysentery.

Stimulating Sedatives.

Stimulating Sedatives are stimulating medicines, combined with sedative or soothing agents. This union is often found most advantageous in a variety of painful affections accompanied by faintness or debility, as for diarrhœa, cholera, colic, painful menstruation, and some forms of dyspepsia.

66. Take of Chloroform	drachm, one.
„ Aromatic Spirits of Ammonia .	drachm, one.
„ Spirits of Nitric Ether . .	drachm, one.
„ Brandy	ounce, one.

Mix. Dose—one tea-spoonful in a glass of water. Dose for a child six months old, three or four drops; one year old, six or seven drops; two years old, ten or twelve drops in a little water. For diarrhœa and cholera. The medicine should be kept in a well-stoppered bottle, and the bottle should be well shaken before being used.

67. Take of	Chloroform	drachm, one.
„	Aromatic Spirits of Ammonia .	drachm, one.
„	Chlorodyne	drachms, two.
„	Brandy	ounce, one.

Mix. Dose—one tea-spoonful in water every three or four hours. For diarrhœa and cholera. This and Recipe 66 should be taken in as much water as will dilute the compound, so that it may not be unpleasantly strong to swallow· A large wine-glassful will be the quantity of water suited to most people. Shake the mixture before using.

68. Take of	Prepared Chalk	drachm, one.
„	Aromatic Spirits of Ammonia .	drachms, two.
„	Tincture of Opium . . .	minims, forty.
„	Camphor Mixture . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For dyspepsia and diarrhœa.

69. Take of	Benzoic Acid	drachm, one.
„	Carbonate of Ammonia . .	drachm, one.
„	Water, distilled . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For chronic cystitis, certain urinary disorders, and in some forms of rheumatism.

70. Take	Extract of Conium	grains, three.
„	Extract of Indian Hemp . .	grain, one quarter.
„	Camphor	grain, one.

Make a pill. Dose—one three times a day. For asthma and spasmodic bronchitis.

Diuretics.

Diuretics are medicines which, acting on the kidneys and urinary passages, increase the quantity of urine. This class of remedies is particularly useful in various kinds of dropsy; also in fevers, rheumatism, gout, and dyspepsia attended with high-coloured, scanty urine. The principal medicines of this class are nitrate of potash, spirits of nitric ether, colchicum.

71. Take of	Nitrate of Potash . . .	drachm, one.
„	Spirits of Nitric Ether . .	drachms, three.
„	Water, distilled . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For fever and rheumatism.

72. Take of	Nitrate of Potash . . .	scruples, two.
„	Spirits of Nitric Ether . .	drachms, two.
„	Wine of Colchicum . .	drachms, two.
„	Water, distilled . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For rheumatism.

73. Take of	Nitrate of Potash . . .	grains, ten.
„	Bicarbonate of Potash . .	scruple, one.
„	Sugar, White	drachms, two.

Mix well into a powder. To be taken three times daily in barley-water.

74. Take of	Nitrate of Potash . . .	scruples, two.
„	Spirits of Nitric Ether . .	drachms, two.
„	Tincture of Cantharides . .	drachms, two.
„	Water, distilled . . .	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three hours. In cholera, when no urine is secreted.

Opiates.

Opiates are medicines which relieve pain and induce sleep. Of these the principal are opium, morphia, chloral. In large doses they are all poisons, and must, therefore, be administered with caution.

75. Take of	Chloral	grains, twenty.
„	Water, distilled . . .	ounce, one and a half.

Make a draught. *Vide Chloral*, p. 9.

76. Take of	Hydrochlorate of Morphia	grain, one.
„	Rectified Spirits of Wine	drops, ten.
„	Water, distilled	ounce, one.

Make a draught. To be taken when a strong opiate is required, as in obstruction of the bowels, and in tetanus.

Emetics.

Emetics are medicines which cause the stomach to contract on its contents, and to expel them through the gullet and mouth. The emetics in most common use are ipecacuanha, tartar emetic, and the sulphate of zinc. It is desirable to promote the action of emetics by copious draughts of warm water, which, filling the stomach, also diminish the disagreeable sensation accompanying vomiting when the stomach is empty. If the vomiting, after taking an emetic, is not freely performed, it may often be induced by tickling the throat with a feather. Mustard and common salt are often used on an emergency as emetics, instead of the drugs mentioned above. Three table-spoonfuls of common salt dissolved in a quart of warm water forms a good emetic, but is not so rapid in its action as the mustard emetic, or Recipe No. 77, given below. *Tartar Emetic*, when used as an emetic, exerts a very depressing influence on the system, and is not, therefore, well adapted as an emetic for very young, for very old, or for weakly persons, and has not been prescribed in this work.

77. Take of	Mustard Flour	table-spoonful, one.
„	Common Salt	tea-spoonful, one.
„	Warm Water	ounces, ten to twelve.

Mix, and let the patient drink it all. This emetic should act quickly within five or eight minutes.

Local Applications.

Local applications are many and various, and may consist of hot applications, of cold applications, of soothing applications, of stimulating agents, of astringents, of blisters, of injections, of applications to fracture or other injuries, and of various kinds of baths, &c.

HOT APPLICATIONS.

78. *Bran Poultice.*—Make a linen or flannel bag of the size requisite to cover the part affected, and fill it loosely with bran. Pour boiling water on this till the mass is thoroughly moistened. Put it into a coarse

towel and absorb excess of moisture. Then place it on the part, and cover with a dry towel.

79. *Bread Poultice.*—Put half a pint of scalding hot water into a basin. Add to this as much of the crumb of bread as the water will cover. Let it steep for five minutes. Then drain off the water and spread the moistened bread on a piece of linen, and apply it to the part. In India, *atta* or flour must often be substituted for bread, the latter not being always available.

80. *Linseed Meal Poultice* is made in a similar manner by scalding finely powdered linseed meal.

The principal use of poultices of any kind is to maintain the parts affected warm and moist, and they are thus chiefly useful to hasten the process of suppuration, or 'gathering,' and to relieve the pain of boils or abscesses. When applying a poultice, of any description, it is well to cover the surface with a little lard, or butter, or oil, which will prevent the material of the poultice sticking to the skin when removed. Poultices must be changed more or less frequently, according to the special requirements of each case. They should never be allowed to remain on the part affected after they have cooled, as they then become clammy, unpleasant, and even injurious.

81. *Fomentations.*—Another method of applying moist heat is by fomentation. This is managed by having some pieces of flannel of the required size, and containing four or five folds, soaked in water so hot as to be grateful to the patient. The hand is not a fair guide to the heat necessary, neither is a thermometer, as some persons bear without flinching the application of heat to the skin, which would be painful to others. Beneath the part to be fomented should be placed a waterproof sheet, or oil cloth. Then, the flannel should be wrung nearly dry (by twisting it in a towel), applied to the part, and covered with a good, thick, warm towel. Another fold of flannel should be in the water in readiness, and the flannels should be changed before they feel cool to the patient. This should be effected quickly, so that the patient may not take cold, and care should be taken to dry the parts thoroughly after the fomentation.

Sometimes, instead of either poultices or fomentations, it will be better and more convenient to use the substance known as spongio-piline, which is composed of a kind of felt with an impervious covering. Or the 'Iceland Moss poultice' may be used, which is sold ready prepared, and only requires steeping in hot water before being applied.

Poppy Water for fomentation may be made by steeping half a dozen bruised poppy heads, together with the contained seeds, in as many pints of boiling water; and then, after half an hour, straining the infusion clear. Poppy water is very usefully employed, instead of plain water, for many painful affections.

82. *Dry Fomentations.*—It is sometimes advisable to apply dry heat instead of moist heat. This may be effected by the application of flannel bags filled with camomile flowers, hops, bran, or even sand. The bag thus filled should be heated by exposure to the fire and then applied to the part, another being substituted when it becomes cold. A hot brick, or a bottle filled with hot water enveloped in flannel, may also often be used with advantage, particularly for the feet. Or an india-rubber bag made for the purpose may be used. The bag should not be filled too full with water, and if not furnished with a spongio-piline side, should be wrapped in flannel before being applied to the part.

There is one great advantage in the application of either dry or moist heat as above, viz.; That it will scarcely ever do harm, while cold applications are, in some maladies, unadvisable.

COOLING APPLICATIONS.

It has been stated that hot applications are most useful to hasten the process of gathering, or suppuration, but in the commencement of any local inflammation it will often be proper to use cooling applications, and thus endeavour to check the formation of matter. As it may be sometimes difficult to decide whether the use of hot or cold applications will be best in any particular case, the sensations of the patient should be consulted, which are generally a safe guide. Thus if shivering and discomfort follow the application of ice, or cold applications, the cold should be discontinued. Should pain in and around the part come on—as, for instance, after a sprain—increased by each fresh application of cold, the dressing should be changed for *warm* applications, *gradually* made hotter in order to avoid a too sudden impression on the affected part.

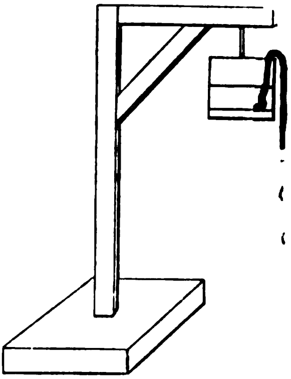
The application of cold may be effected by the following means:—

1. *Evaporating Lotions.* (*Vide* Recipes 83, 84.)—A piece of linen, *not doubled*, should be dipped in the liquid, and laid on the part affected, but no other covering should be permitted over this. To secure evaporation and the resulting cold, exposure to the air is required. The piece of linen should be frequently removed and freshly wetted, or the lotion may be dropped upon it from a sponge. In the absence of a lotion, water, with a little ice in it, may be used in this manner. Or a lotion may be made by mixing two ounces of spirits of wine and two ounces of vinegar in a pint of cold water.

2. *Ice in a Bladder, or India-rubber Bag.*—Ice roughly pounded, or shaved with a cucumber grater, placed in a bag, will produce an intense degree of cold. Or, if ice is only available in small quantities, it may be mixed with an equal bulk of salt. *Ice Poultices* may be made by placing lumps of ice on a thick layer of linseed meal. Sprinkle meal lightly over

the ice, and cover with another cloth. Fold in the edges to prevent escape of the meal, and apply the thick side. The exclusion of air prevents quick melting of the ice, and the thick layer of meal, between it and the skin, prevents a high degree of cold.

3. *Irrigation.*—This is effected by exposing the injured part, beneath which india-rubber cloth, or oil-cloth, should be placed. Then a vessel containing cold water should be suspended on the bed-post, or from a hook in the wall, or from a stand as here figured, so that the receptacle may hang directly over the part to be 'irrigated.' Continuous dripping of the water may be accomplished by hanging over the edge of the vessel a thin strip of lint previously well soaked. Capillary attraction will cause the fluid to drop more or less rapidly, according to the size of the strip of lint, from the latter on the parts beneath. The exact point on which the dripping occurs should be varied from time to time, by slightly altering the position of the hanging vessel.



IRRIGATION STAND.

83. Take of	Nitrate of Potash . . .	. ounce, half.
,,	Hydrochlorate of Ammonia	, ounce, half.
,,	Common Salt	. ounce, half.
,,	Water	. ounces, twelve.

Make a lotion. Either this or Recipe 84 may be used when cooling lotions are required. The materials as above may be procured in Indian bazaars, where nitrate of potash is known as *Shora*, and hydrochlorate of ammonia as *Nissadul*, or *Naushadur*. If greater cold is required, instead of using this as a lotion, equal parts of the ingredients may be mixed roughly together with a very small quantity of water, then placed in an india-rubber bag, or bladder, and applied to the part. This forms a good substitute when ice cannot be procured.

84. Take of	Acetate of Lead . . .	. drachm, one.
,,	Rectified Spirits of Wine .	. ounce, one.
,,	Water, distilled . . .	. ounces, twelve.

Make a lotion. To be applied as mentioned above, under 'Evaporating Lotions,' p. 592.

SOOTHING APPLICATIONS.

85. *Water Dressing.*—This consists of a double fold of lint or linen soaked in water and applied to the part. Over this a covering of impermeable material, as oil-silk, gutta-percha tissue, or bladder, should be laid. Either warm or cold water may be used as most agreeable to the patient, and the dressing should be changed twice or three times a day. Water may be medicated by the addition of various substances, and used in a similar manner. If there is a fœtid discharge, use Recipe 117.

86. *Simple Ointment.*—Mutton fat, two parts; olive oil, one part; yellow beeswax, half a part. Melt the whole in a saucepan, and stir while cooling. This forms a healing ointment, which may be medicated in various ways by the addition of other agents (*vide* Recipes 95, 96).

87. *Carron Oil.*—Equal parts of linseed oil and lime water (*vide* Recipe 41) should be well shaken together. Carron oil is a useful application to burns and scalds.

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88. *Black Wash.*—

Take of	Calomel	grains, thirty.
„	Lime Water	ounces, ten.

Mix well by shaking the bottle and make a lotion. 'Black Wash,' so called from the dark colour the mixture assumes, is a very useful application for venereal sores. To make Lime Water, *vide* Recipe 41.

89.

Take of	Tincture of Opium	drachm, one.
„	Tincture of Aconite	drachm, one.
„	Chloroform	drachm, one.
„	Soap Liniment	ounce, one and a ha

Mix for a Liniment, and mark POISON. This Liniment may be rubbed on the skin with a piece of sponge for neuralgic pains.

90.

Take of	Tincture of Opium	drachm, one.
„	Tincture of Aconite	drachm, one.
„	Chloroform	drachm, one.

Mix for a Liniment, and mark POISON. This Liniment may be rubbed on the skin with a piece of sponge or lint for neuralgic pains. It is much stronger than Recipe 89. It should not be used when any wound or injury of the skin exists, or for the mouth; nor for young children.

91. Fill a small phial two-thirds full with powdered camphor, and fill up with rectified spirits of wine or sulphuric ether. With this solution the part affected by neuralgia should be lightly rubbed by means of a

sponge or lint, fixed to a piece of stick. A minute suffices to produce almost entire loss of sensation, but this effect does not last long.

Stimulating Applications.—Ointments.

92.	Take of Flour of Sulphur	ounce, one.
„	Nitrate of Potash	drachm, half.
„	Soap, or Glycerine	drachm, one.
„	Mutton Fat	ounces, four.

Mix thoroughly in a mortar, after melting the fat over a fire. An effectual application for itch.

93.	Take of Tincture of Opium	drachms, two.
„	Carbolic Acid	grains, twenty.
„	Mutton Fat	ounce, one.
„	Olive Oil	ounce, one.

Melt in a pipkin over the fire, and stir while cooling. A good stimulating ointment for ulcers.

94.	Take of Red Iodide of Mercury	grains, sixteen.
„	Mutton Fat	ounce, half.
„	Olive Oil	ounce, half.

Mix the fat and oil by melting over a fire, and then rub the iodide of mercury thoroughly into the fat and oil in a mortar. A useful ointment to rub into the skin in cases of enlarged spleen; of 'Derbyshire neck,' or goitre; and for enlarged glands generally.

95.	Take of Powdered Gall Nuts	grains, eighty.
„	Extract of Opium	grains, thirty.
„	Simple Ointment (Recipe 86)	ounce, one.

Mix thoroughly in a mortar. A good application for piles or hæmorrhoids.

96.	Take of Acetate of Lead	grains, thirty.
„	Simple Ointment (Recipe 86)	ounce, one.

Mix thoroughly in a mortar. A good ointment for scorbutic ulcers.

Lotions.

97.	Take of Powdered Alum	grains, twenty.
„	Water, distilled	ounces, eight.

Mix well and make a lotion. Useful for eye and ear affections, and for weak, indolent ulcers.

98. Take of Sulphate of Zinc . . .	grains, eight.
„ Water, distilled . . .	ounces, eight.

Mix well and make a lotion. For eye and ear affections.

99. Take of Bicarbonate of Soda . .	drachm, one.
„ Water, distilled . . .	ounces, eight.

Mix well and make a lotion. Useful for eczema, and certain other skin diseases.

STIMULATING AND ASTRINGENT GARGLES.

100. Take of Alum	drachm, one.
„ Water, distilled . . .	ounces, eight.

Mix and make a gargle. For sore throat, ulcerated mouth, and scurvy. Also as an injection.

101. Take of Tincture of Ginger (*strong*) .	drachm, one.
„ Water, distilled . . .	ounces, eight.

Mix well and make a gargle. For relaxed throat.

102. Take of Gallic Acid	scruple, one.
„ Brandy	drachms, four.
„ Water, distilled . . .	ounces, six.

Mix and make a gargle. For salivation, ulcerated mouth, and scurvy.

103. Take of Sulphate of Zinc . . .	grains, thirty.
„ Water, distilled . . .	ounces, eight.

Mix well and make a gargle. This and the three preceding gargles are all useful in different forms of salivation, ulcerated mouth, and relaxed and sore throats, sometimes one, sometimes another, being most suitable.

INJECTIONS OR ENEMAS.

Previous to giving an injection the bed and clothing should be well protected. Then the tube of the injection syringe should be warmed and oiled, and the instrument should be filled so that air may not be pumped in. The patient should lie on the left side, and the passage should be opened by the finger and thumb placed on each side of it. The tube of the instrument should be *gently* introduced, in the direction of the bowel, which is *towards the left hip bone*. The instrument should be worked slowly, and not too forcibly.

For the method of administering an injection to children, and for the quantity to be injected, *vide* article *Constipation of Children*, p. 118.

If an injection syringe is not available, a substitute may be improvised by tying a piece of tobacco pipe, or other tube, into a bladder containing the injection. The contents must then be squeezed out of the bladder through the tube.

104.	Take of Starch or Soap	drachms, two.
	„ Water, warm	ounces, ten.

Mix well, and make an injection.

105.	Take of Assafœtida	drachm, one.
	„ Soap	drachm, one.
	„ Castor Oil	ounce, one.
	„ Water, warm	ounces, eight.

Mix well. A stimulating injection.

106.	Take of Castor Oil	ounce, half.
	„ Spirits of Turpentine	ounce, half.
	„ Croton Oil	drops, four.
	„ Soap	grains, thirty.
	„ Water, warm	ounces, eight.

Mix well. A purgative injection. For apoplexy.

107	Take of Sulphate of Zinc	grains, twenty.
	„ Tincture of Opium	minims, thirty.
	„ Water, warm	ounces, eight.

Mix well. An astringent injection. Useful for 'whites,' and diseases of the womb.

Digested enemas are often useful when the patient cannot take food. Eight ounces of beef-tea, the yolk of an egg, and a tea-spoonful of raw arrowroot, should be mixed, and warmed in a covered jar to 100° Fahr. Then, fifteen grains of pepsin, and ten drops of strong hydrochloric acid should be added separately. The whole should stand, at the same temperature, for about one hour. Then, while the mixture is stirred, small quantities of bicarbonate of soda should be added, so long as it occasions any effervescence. This imitates the process of digestion, and the material is injected into the bowel, in a state in which it may be most easily absorbed.

Irritating, Rubefacient, or Blistering Applications.

108. *Turpentine Stupe.*—Saturate a piece of lint or a piece of flannel with spirits of turpentine. Place this on the painful part and cover with oiled silk or a dry cloth. Retain it on the part for an hour, or until it becomes too painful. The turpentine stupe produces redness of the skin, but does not blister.

109. *Mustard Poultice.*—Mix flour of mustard with lukewarm water into a thick paste and spread thickly over a piece of linen large enough to cover the part for which it is required. Then apply and maintain it on the part for twenty minutes. For children a piece of muslin should be placed between the mustard and the skin to prevent too great action of the former on the tender surface of the child, which might be followed by blisters.

A good substitute for the mustard poultice is a preparation sold by chemists, under the name of 'Mustard Paper.' One leaf, immersed in water for half a minute and applied to the skin, will have the same effect as a mustard poultice, but without the annoyance of any linen being soiled, and saving the patient and the people near him from the inconvenience of the disagreeable smell and acrid vapour arising from an ordinary poultice. When used for children, the mustard paper, particularly if fresh, should be guarded by muslin, between it and the skin.

110. *Blisters.*—The 'Spanish Fly,' or Cantharides plaster, is spread thinly on a piece of sticking plaster, leaving a margin of the latter, which when the blister is applied to the skin adheres and maintains the whole in position. The blister begins to smart and rise in about two hours, and may be taken off in six or eight hours. But the time necessary to produce a blister depends much on the greater or less sensibility of the person's skin. When the blister is taken off all the raised blebs found should be snipped at their most bulging parts with a sharp pair of scissors, and the water allowed to drain out, but none of the raised skin should be removed. Then the part should be dressed with Recipe 86, or with salad oil, spread on linen or lint. In six or eight hours this dressing should be taken off, when probably other blebs or blisters will have formed. These must be snipped and the water drained out. Then the place should be dressed twice daily with simple ointment. If boils form after blisters near the blistered part, they should be fomented and poulticed, as though resulting from any other cause.

There is also a blistering tissue made, but it does not keep well in India.

Any kind of blister must be applied to children with caution, as sores are likely to result. When necessary to apply blisters to children, muslin should be placed between the blister and the skin, so that the effect of the former may be rendered less violent, and the blister should not be suffered to remain on more than three hours.

APPLICATIONS FOR INJURIES.

111. *Starch Bandage.*—Make a very thick solution of starch, soak a bandage in it, and apply to the part, winding fold after fold until four or five folds cover the limb. While applying the bandage smear it thickly with starch. Then let it dry, when it forms a firm support or shell. It should be applied with moderate firmness, but not too tightly. It is very useful after the splints are removed from a fractured limb, as a support to the part.

112. *Leather Plaster.*—This is adhesive or resin plaster spread on leather. It is chiefly useful in the treatment of fractures to form a support after the splints are taken away.

Baths.

Properly and judiciously used, warm baths are remedies of great power and utility; but improperly used, they may do much injury. The effect of a hot bath is to relax the muscles, to diminish the force of the heart's action, and to produce debility and faintness. It is, therefore, necessary to watch a person placed in a warm bath, and, while in the bath, the reclining position should be assumed, which renders fainting less liable to occur. The time during which a person should remain in a warm bath must be regulated chiefly by the effect produced. Symptoms of faintness require removal, when the person should be dried and put to bed. If faintness be marked, the person should lie down immediately, and be dried in that position.

The temperature for baths is, cold 60° to 75°; tepid 85° to 92°; warm 92° to 98°; hot 98° to 112°. It must be remembered that the skin of infants is more susceptible to external impressions, and will, therefore, suffer from a degree of heat innocuous to an adult. Infants have been frequently scalded to death in too hot baths, or by too hot fomentations. The temperature of warm baths or of fomentations for children should not, therefore, exceed 96°, or, at most, 98° Fahr.

The complaints for which warm baths are most useful in adults are those accompanied by great and spasmodic pain, as gravel, rupture, stoppage in the bowels, and rheumatism. In children warm baths are chiefly required in convulsions, croup, pain in the bowels, restlessness from teething, flatulence.

Another method of applying heat to the surface, when a hot bath is not advisable, is wrapping the patient in a sheet or blanket wrung out of hot water, and covering with dry blankets, enveloped in which the patient may remain twenty minutes, and must then be thoroughly dried with warm towels and put to bed.

Modified Turkish baths are often beneficial to tropical invalids, who, without recognisable organic disease, suffer from prolonged residence in the East. In such cases, the patient should leave the hot chamber as soon as perspiration occurs, and should take a tepid douche, instead of the plunge into the cold bath.

A Medicated Bath is one in which some substance, intended to act as a medicine through the pores of the skin, has been mixed with the water. The substances thus used as medicinal agents are common salt, acids, soda, sulphur.

113. *Nitro-Muriatic Acid Bath.*—

Take of Muriatic Acid . . .	three parts.
„ Nitric Acid . . .	two parts.

Mix the two acids carefully and slowly; then add, also slowly, five parts of distilled water. Wait till the heat produced by the mixture of the ingredients subsides, and bottle for use. Sixty ounces of this dilute acid must be added to the water of each bath, which should be about 98° Fahr. in temperature. The patient should remain in the bath about fifteen minutes, the temperature being maintained at 98° by the gradual addition of hot water. On coming out of the bath, the body should be rubbed with coarse towels. The Nitro-Muriatic Acid Bath is chiefly used in chronic liver and spleen affections.—*Caution.* When using strong acids, care must be taken, as they will burn anything they come in contact with. For children half strength. Muriatic is also called hydrochloric acid.

Dry Cupping.

114. *Dry Cupping.*—This consists in the application of the cupping-glasses, without following the process up by the use of the scarificator or lancets. Several glasses may be applied and re-applied in this manner, which causes a rise of the blood from the internal parts to the surface.

If cupping-glasses are not at hand, dry cupping may be accomplished by common tumblers, which should be first exhausted of air by the introduction inside of a little cotton wool tied on a stick and saturated with spirits of wine or brandy, and then lighted. Care must be taken that the glass is not sufficiently heated to burn the skin of the patient. When it is desired to take the glass off, the finger-nail should be insinuated between the edge of the glass and the skin, when the glass will become loose, and may be easily detached. After dry cupping no application is required; the parts will recover their natural appearance in a few hours. If it is desired to maintain the irritation caused by the dry cupping, hot fomentations should be used.

115. *Leeches—how to apply them.*—The medicinal leech has three horny teeth in its mouth, and therefore makes a triangular wound. The Indian leech, being much smaller than the European variety, does not take so much blood.

Leeches should be kept in a cool place, in a jar of water with mud at the bottom, the mouth of the vessel being covered with muslin. The water should be changed every two or three days.

There is often a good deal of trouble in getting leeches to fix. The part on which they are to be applied should be carefully cleansed and wiped with a cool moist cloth, so as to leave it damp. If they do not bite readily, the part may be moistened with a little sugar and water or milk. If this does not answer, the skin may be slightly scratched with a sharp needle till the blood comes, when the leeches will probably fasten. Sometimes rubbing a refractory leech in a dry towel, or placing it for a moment in warm porter, will cause it to bite.

If it be wished to apply leeches in one circumscribed spot, the best plan is to put them all in a small wineglass, which is to be turned down over the part. If required to be spread over a large surface, they must be put on singly by the hand; they should then be held lightly by the tail, wrapped in a piece of wet cloth, so that they may not be inconvenienced by the heat of the hand. If the leech does not fix soon, it is better to return it to the water for a time, to let it cool itself, trying another in the meantime. More leeches than the number directed to be applied should be obtained, as often some will not bite. It is always advisable, if possible, particularly with children, to apply leeches over some bone, against which pressure may be exerted to stop the bleeding, if necessary. A rule with regard to children is to employ small leeches. Two little leeches may be used instead of one large one, the bites of the former rarely bleeding so much after their removal.

When the full number has been applied, they should not be disturbed, or torn off, as the teeth may be left in the wound. They should be covered with a light cloth until, having filled, they will fall off in about three-quarters of an hour. Then the leech-bites should be fomented with hot water, if it is wished to encourage the flow of blood, otherwise they should be covered with dry lint.

Leech-bites will generally stop bleeding without further interference; if not, the measures recommended under the head 'Bleeding from Leech-bites,' page 447, should be adopted.

A little salt should be sprinkled on the leeches after they drop off, which causes them to disgorge the blood, otherwise they die, or at least are not fit for use again for many days. They should then be returned to clear water, which for some time should be frequently changed.

Disinfection.

The simplest form of contagion is when a disease is communicated by the conveyance of a palpable poisonous matter from the sick to the healthy, either directly, or through the medium of clothing, food, animals, &c.

But the poisonous matter of many diseases may be transmitted without apparent direct or indirect contact, through the agency of invisible *germs* or *spores* generated by the sick, or from the discharges of the sick; or even, as there is reason to presume, spontaneously—or certainly localised—under various unsanitary conditions and favouring atmospheric influences. The appearance of vegetable growths, or of insects, in unexpected places, often creates surprise: but the germs must have been wafted to such places through the medium of the atmosphere. The unexpected appearance of disease is explainable in a similar manner: an explanation rendered certain by the fact that there are diseases the germs of which may be seen and carried about. Disease germs are most abundant where sick people are congregated. The germs may be breathed into the lungs, or taken with food or drink. They may multiply, and grow with rapidity within the body; they poison the blood, and they excite disease similar to that from which they originate. All persons are not alike susceptible, or always in the same degree susceptible, to either contagion by contact, or to infection by germs. Usually, a weakened or fatigued person will become affected more easily than a robust and vigorous man; the intemperate sooner than the temperate; the hungry and poverty-stricken before the well-fed, well-clothed, and well-housed. Similarly, all germs (as is the case with seeds) are not prolific. Many, perhaps the great majority, are destroyed by the oxydising influence of the atmosphere, before they find a suitable ground or *nidus* for their development. Disease germs may, or may not, be associated with bad smells.

Disinfection means not only the removal of bad smells, but the more important operation of destroying, or of rendering innocuous, all germs, or decomposing or diseased matter from which germs may arise. For these purposes two classes of agents are in use. One class are simply *deodorants*, and only act by the overpowering of one odour by the substitution of another, and therefore do little good. They may be pleasant as deodorisers, and therefore not to be altogether condemned, but they fail as disinfectants. Under the head of deodorants are the fumes from burning brown paper, tar fumes, vinegar, acetic acid, ammonia, roasted coffee, pastiles.

Agents can only be termed disinfectants when they destroy, or at least render harmless, all noxious emanations. Under this head may be classed extreme dry heat, charcoal, quick lime, carbolic acid, sulphurous acid, nitrous acid, Condy's fluid, nitrate of lead, sulphate of iron, chloralum, &c.

But there are some few agents which, it is believed, act in both ways—as deodorants and as disinfectants,—the principal of which are Condy's fluid, carbolic acid, chlorine gas, chloride of aluminium or 'chloralum,' nitrate of lead.

Both deodorants and disinfectants should, however, only be used as adjuvants, and should never be permitted to take the place of ventilation, and of cleanliness. But disinfectants may always be used with advantage, if it is fully recognised that they are only aids to, and not instead of, fresh air and cleansing. If dirt and filth are not removed, and if fresh air is not admitted, neither disinfectants nor deodorants will do any good. They should only be used after dirt and filth have been taken away, and in combination with ventilation: if not, they simply hide the dirt, and conceal the want of pure air, instead of destroying the evil arising from it. It is not attention to one *desideratum* which will prevent disease, but a judicious combination of attention to all.

The method of using some of the principal disinfecting agents is now given.

116. *Condy's Fluid.*—This may be placed in saucers, or cloths soaked in it may be hung up, in apartments where there are contagious maladies. Furniture and clothing, utensils, and the hands of attendants may be washed in Condy's fluid mixed with water, in the proportion of one part of the former to fifty of the latter. As Condy's fluid is odourless it is preferred by many to carbolic acid preparations, but it is not so powerful, and its use must be limited by the fact of its leaving a brown stain on linen. It should not be used at the same time as carbolic acid as they are chemically opposed.

117. *Carbolic Acid.*—This is one of the most popular disinfectants, and is especially valuable on account of its antiseptic properties. In its pure state it is a white crystalline solid, which burns everything it comes into contact with. The commercial acid is a thin, tarry fluid, possessing a strong odour and poisonous properties. When diluted by fifty parts of water, it may be used for washing furniture, clothing, utensils, hands of attendants, and, sometimes, as a wash for the mouth. In consequence of the poisonous properties of carbolic acid, the preparation known as carbolic acid disinfecting powder is safer as a domestic disinfectant. It may be employed for scrubbing floors or furniture, it may be put in water, in the proportion of half a pound to the gallon, to form a solution for steeping infected clothing in, and it may be placed in vessels used for receiving the various discharges of the sick. It is also very useful for disinfecting urinals, water-closets, stables, middens, &c. In whatever form used—whether as a solution of the acid in water, or as powder—carbolic acid is destructive of the low forms of animal and vegetable life, and arrests or prevents putrefactive changes.

118. Chlorine gas would be the best of all agents if it were not, unless largely diluted, irritating to the lungs. It may be obtained in various ways. Chloride of lime (popularly known as bleaching powder), moistened with water in a saucer, gives it off in small quantities. If a quicker effect is desired, a little *dilute sulphuric acid* may be added. Chlorine gas may also be obtained by adding a little *dilute muriatic acid*, gradually, to half a tumblerful of Condy's fluid. Both these methods are convenient, and sufficient for a sick room. When required in larger quantities, as for the disinfection of a sick room during the absence of the occupant, chlorine gas may be generated from the following combination: common salt, four ounces; binoxide of manganese, one ounce; sulphuric acid, one ounce; water, two ounces. Mix the salt and manganese roughly, and place in a basin, then add the sulphuric acid *gradually*

to the water, and pour over the powder. If the basin is placed on a box of hot sand the formation of the gas will be more rapid.

119. *Chloride of Aluminium, or 'Chloralum,'* is a powerful disinfectant, and possesses the advantage of being non-poisonous, without odour, and very cheap. Not being volatile, like carbolic acid or chlorine gas, it cannot be regarded as an atmospheric disinfectant, but it may be used in the same manner as carbolic acid powder.

120. *Nitrate of Lead.*—A pound of the material, costing about one shilling in England, furnishes sufficient to make nearly 400 gallons of fluid, so that it is also remarkably cheap. To prepare it for use, take half a drachm of nitrate of lead, and dissolve in a pint or more of boiling water. Then dissolve two drachms of common salt in a bucket of water. Pour the two solutions together, and allow the sediment to settle. A cloth, dipped in this liquid and hung up, will sweeten a foul atmosphere, or it may be used as mentioned with reference to other disinfectants. Chemists now prepare pellets of nitrate of lead, so portable that a dozen of them may be carried in the waistcoat pocket. One pellet dissolved in a pint of boiling water, and thrown into a bucket of cold water, in which two teaspoonfuls of common salt have been previously dissolved, will produce a pailful of a powerful disinfectant fluid. These pellets are especially useful for travellers, who often find themselves occupying rooms requiring both ventilation and disinfection.

Disinfection of the air of rooms.—For living rooms while occupied and especially while tenanted by the sick, the most important point is to insist on good ventilation. This, and cleanliness, being accorded the first places, the following agents may be used as most conveniently procurable.

Bags or baskets containing a little charcoal, which has the property of absorbing sewage gases, especially sulphuretted hydrogen, may be hung in the room. Quick lime, which absorbs carbonic acid, may also be used, placed in a saucer. Tar fumes, vinegar, and acetic acid, ammonia, and roasted coffee, are old deodorising remedies, but they are not very effectual. Chlorine gas is one of the best disinfectants, but if present in too large quantity it is irritating to the eyes and air passages. Carbolic acid one ounce mixed with a pound of sand may be placed in saucers about the room. Cloths damped in carbolic acid solution, or in solution of nitrate of lead, or in Condy's fluid, may also be hung up about the room, unless in cases where there may be an objection to a damp atmosphere. The isolation of the patient may be rendered more certain, by suspending outside the door a sheet moistened with a solution of carbolic acid or Condy's fluid. One or more of the above means may be used (excepting carbolic acid at the same time as Condy's fluid, as the two are chemically opposed and may counteract each other). Charcoal in bags, chlorine gas, and carbolic acid solution or powder, are the means which recommend themselves as probably the most efficacious, and the most easily procurable.

Disinfection of clothing, bedding, carpets, tents, &c.—Any material of these descriptions used by patients with infectious diseases, should, if it can be spared, be immediately burnt. Otherwise, in all cases where it can be carried out, clothing, bedding, &c., are best disinfected by being exposed for one hour or more, to a dry heat, of from 240° to 250° Fahr. For this purpose it would be well if public ovens were provided. After disinfection by heat, or, if disinfection by heat cannot be accomplished, articles of the kind should be first immersed in solution of Condy's fluid, or of carbolic acid, or of nitrate of lead, whichever may be available; and of the strengths given at p. 604. After soaking for three or four hours in the disinfecting fluid, the articles should be boiled for half an hour in clean water, afterwards thoroughly washed with soap, and then exposed for three days to the sun and air. If disinfectants are not available, the time of boiling, of washing with soap and water, and of exposure to the air should be doubled.

The hair or other material of mattresses should be 'teased out,' before being treated by disinfectants, washing, or heat.

The disinfection of soiled clothing should be accomplished *immediately*, the articles not being allowed to lie by, even for a few hours. A large vessel, containing the disinfecting fluid used, should be always kept near the sick-room, for the immediate reception of all bed and body linen, on its removal from the patient.

The final washing of all infected clothing should always be effected separately. It is authenticated that diseases may be conveyed by *clean* clothes, prepared in a laundry, where infected clothing has been also 'got up.'

Disinfection of utensils.—All utensils used by the sick, such as cups, spoons, forks, plates, &c., should be first *immediately* immersed in some disinfecting fluid, and afterwards scrupulously cleansed in the usual manner. The disinfecting fluid may be the strength mentioned at p. 604; but Condy's fluid is preferable, as carbolic acid might possibly leave an unpleasant taste.

Disinfection of the hands of attendants.—Two basins, one containing Condy's fluid, or carbolic acid solution, and another containing plain water, should be kept constantly ready, so that attendants may wash *first* in disinfecting fluid, and then with soap and water *immediately* on the hands being soiled by infectious discharges from the sick. The strength of the solution should be the same as mentioned at p. 604. If blood or thick discharges have dried on the hands, they should be scrubbed with sand.

Disinfection of the body of the sick.—Not only attendants but the sick person also should use water for washing purposes, in which a disinfecting agent has been placed. When strong enough, benefit may often result from the use of medicated or disinfecting baths.

Disinfection of discharges from the sick.—Discharges from the sick should be wiped away, or soaked up, with rags which may be burnt: sponges or pocket-handkerchiefs should not be used for such purposes. Discharges from the bowels, or vomit, or urine, or expectoration, should be received on their very issue from the body into vessels charged with disinfectants. For this purpose, two or three ounces of carbolic acid powder; or six or eight ounces of a solution of carbolic acid in water (strength four ounces to the gallon), or six or eight ounces of a solution of sulphate of iron (the *hera-kusees* of the bazaars), strength a pound to the gallon—and which will probably be most easily procurable— should be placed in the close-stool, previous to use, and a smaller quantity in cups used for expectoration. The disinfected mass should be removed as soon as possible, and instead of being thrown into drains, or sewers, or on the ground, or into water-closets, it should be buried three feet deep, at some distance from any tank, well, or water. Otherwise, if not totally disinfected, it may infect the water, and, through the medium of that fluid, those drinking it. If thrown on the ground, the material dries, and the germs of disease may be wafted through the atmosphere to different places (*vide* previous remarks, p. 602.)

Too much attention cannot be paid as to what becomes of the germs of disease, not only as contained in the discharges from patients, but also as contained in the slops after a cleansing process. Filth is frequently washed away from one article or place, to be carelessly thrown in some neighbouring locality. The only safe disposal of material of the kind, whether arising from disinfecting clothing or utensils, or hands, or discharges from the sick, is burial in the earth; the known oxydising powers of which quickly render all such material innocuous.

Disinfection of animals.—Dogs and cats should not be allowed to pass in and out of rooms tenanted by patients with infectious disease, as there is reason to believe they may convey contagion. If such animals have been exposed to contagion, they should be well washed with carbolic acid solution, and with soap and water.

Disinfection of water-closets, privies, &c.—Dry earth is probably the best agent for ordinary use in privies attached to Indian houses. A handful of common dry earth placed over human excrement will prevent all bad smell, and the mass may be taken away and used as manure, or be buried. But when infectious disease is present, or where water-closets are connected with town sewers, disinfectants should be used. Water-closets, privies, cesspools, and drains can be disinfected by copperas (sulphate of iron). A certain quantity of disinfectant will disinfect only a certain quantity of foul matter, and disinfection is imperfect till all 'hot' smell or alkaline reaction is abolished. For the disinfection of a cubit foot of filth, half a pound of copperas dissolved in a couple of quarts of soft water is sufficient. The daily addition by each individual using a privy or water-closet of two-thirds of an ounce of solid copperas to such privy, or one-third of a pint of the above solution to such water-closet, will keep it wholesome. Carbolic acid can be used after the addition of copperas till the place smells strongly of it. It may be diluted by being shaken up with twenty times its volume of water, and if poured from a watering-pot with rose-nozzle over the sides of a recently emptied privy or cesspool will do great good. Sawdust, or sand, strongly impregnated with carbolic acid, may be used for this purpose. Chloralum will acidify ordinary sewage and destroy its living organisms when added in the proportion of one part to forty. All water-closets and privies should, when epidemics of cholera or typhoid may be expected, be disinfected whether they be offensive or not. It is well at such periods to avoid using any such conveniences which have not been disinfected, especially if, as at hotels and railway stations, they may have been used by persons from infected localities. All the conveniences mentioned need ventilating as much as living-rooms do.

Any manure heap or accumulation of filth, which it is inexpedient to disturb during epidemics, or which cannot be moved, should be covered, if in the neighbourhood of dwellings, and especially if to leeward of dwellings, with coarsely powdered charcoal to the depth of two or three inches, or with freshly burnt lime, or with a layer of fresh, dry earth, if charcoal or lime cannot be obtained.

Disinfection of rooms after removal of the sick.—The furniture, flooring, and all wood-work should be washed with solution of Condy's fluid, or with carbolic acid solution, of the strength mentioned at p. 604. If the walls are papered, the paper should be well wetted with the disinfecting solution and removed. If the walls are white-washed, or colour-washed, the wash should be all scraped off. If the floorings are earthern, or broken chunam, they should be dug up. Then, the room should be disinfected by burning brimstone in it, in the proportion of four ounces to every 100 cubic feet. The cubic space may be calculated by multiplying the height, length, and breadth together by feet. The brimstone should be placed on an iron plate, which should be suspended over a lamp or charcoal fire. This causes sulphurous acid gas to be given off, which is a strong disinfectant, and fatal to all parasitic germs. Doors, chimneys, and windows must be shut whilst this is being done, and any clothes or carpets belonging to the room may, previously to further disinfection (as mentioned at p. 606), be with advantage spread out on ropes during the process. It must be understood that no disinfection of the kind is thorough if a man can live in the room whilst it is going on. The room should be kept closed for three or four hours, after which the doors and windows should be thrown open, and kept open for two or three days. Then the walls may be repapered, or recoloured, and the flooring renewed.

Disinfection of the Dead Body.—When a patient dies from infectious disease, the body should be washed with a strong solution of carbolic acid (one part of acid to fifteen parts of water), and placed in the coffin as soon as possible. Then the body should be surrounded, and the coffin filled up, with charcoal, and chlorine gas may be generated in the room.

It will frequently happen that all the above precautions cannot be taken. It should, however, be understood that, however limited the means or opportunity of carrying out preventive measures, such means and such opportunity should always be used, so as to produce the best possible results under the existing circumstances.

CHAPTER V

THE PRESERVATION OF HEALTH.

This section is especially intended as generally suggestive of the course to be followed, to secure the preservation of health in those varying circumstances attaching to residence and exposure in a tropical climate. Hence as a matter almost of necessity something of the following will be trite and familiar to all who have paid the least attention to sanitary demands. But to render the treatment of the subject complete, and such as will prove useful to all, the reader must be assumed ignorant of the topics to which the following pages refer. Neither is the necessity of extraordinary attention to what may appear—especially to one young, robust, and fresh from Europe—very trivial subjects, evident without some knowledge of the differences of climate, under which the European, translated to the tropics, exists.

He is more or less rapidly—in these days much more suddenly than when so many doubled the Cape—transported from a climate where the mean temperature is low, to one in which the mean temperature is some twenty degrees higher (82° Fahr.), where the sun's rays are more vertical, and where the rainfall is more violent, and instead of being spread over the greater portion of the year is practically confined to certain seasons. But the vast Empire of India, situated under a tropical or semi-tropical sun, extending from the Equator to the eternal snows of the Himalayeh mountains, a great part being uncultivated or irreclaimable land, containing numerous mountain ranges, bounded by the ocean on two thirds of its circumference, must of necessity present an almost endless variety of climate. And although it cannot be doubted that the salubrity of the air depends in different places in a great measure on the surface of the earth at those places, still more depends, particularly in the tropics, on physical and meteorological influences. Before, therefore, the salubrity of any place can be authoritatively decided upon, all those very numerous accessories must be taken into consideration, the results of which medical science expresses in two words—good or bad climate. We cannot confine the definition of climate, as the Natives of India do, to the condition of the local water and air, but must take an exceedingly more comprehensive view, and consider the combined influences of latitude; relative position of sea and land; elevation above the level of the ocean; prevalence or absence of mountain ranges; geological nature of the soil; amount of dry and wet season during the year; average fall of rain and direction of winds; humidity; the position of sterile sand tracts; of extensive lakes; of marshes; of rivers and their embouchures; these determining by their varied influences the natural physical climate of a district. But medical climate is not completely appreciated without the addition of local aspect, cultivation, presence or absence of trees, position and condition of buildings, drainage, and, in short, all the labours of man, as circumstances to be taken into consideration, when attempting the delineation of climate as it affects health and disease.

The three great divisions of the year into hot, cold, and rainy seasons are found to be more or less correct throughout the whole Indian peninsula, although in Scinde, some parts of the Punjaub, and in the North-Western parts of Hindustan generally, the rains are less violent, the cold more intense, and the heat quite as fervent; while in some parts of the Madras Presidency rain is an ordinary occurrence nearly all the year round. But in Southern and Peninsular

India generally, where these changes are governed by the monsoons, the alternations of dry and wet are pretty regular, although varying in different localities as to period of the year. Thus on the Malabar coast the south-west monsoon commences about the middle of April, and continues till August or September, when it gradually loses its violence. Towards the end of October the north-east monsoon begins on this coast, blowing like the opposite winds, first on the southern part, and not being felt to the north for about a fortnight after. On the Coromandel coast the south-west monsoon commences in April, but does not blow violently till June, declining in September, the north-east commencing about the middle of October.

On both coasts the setting in of the monsoon is generally accompanied with violent storms, most so on the Malabar coast, which is deluged with rain during the south-west winds, in consequence of the clouds brought by these blasts being intercepted by the lofty ridges of the western ghauts or mountains, thus affording a striking example of the manner in which natural obstacles modify the climates of whole districts. When the clouds first strike the hill-tops, several hundred inches of rain may fall, rapidly decreasing as the inland country is approached. But at the northern termination of the western ghauts, the monsoon as far as it blows (about lat. 24° 44′) carries the rain without intermission over the whole country; again forcibly illustrating the difference of climate arising from natural obstructions. The rains of the eastern coast are not so violent as on the Malabar shores, and this again seems to be accounted for by the circumstance that the eastern ghauts are less elevated, also farther from the sea than the western, thus intercepting and collecting a smaller proportion of clouds and vapour. From such causes the Carnatic has only about two months' rain, while in the Circars the wet season lasts much longer. But the province of Coimbetoor partakes of the wet season of the Malabar coast, this again being occasioned by a lowness or break in the ghauts in that locality.

It has already been stated that the monsoons do not extend beyond lat. 24° 44′, and therefore the northern parts of Hindustan have the driest climate. During the months of July and August, and the early part of September—the rainy season in the southern part of India—the atmosphere in the north is generally clouded; but little rain, comparatively speaking, falls. Indeed, in Scinde there is very little rain during the whole year, which want, with the proximity of extensive semi-desert tracts, renders the temperature of this province excessively high, the thermometer in June and July varying from 90° to 100°. The cold season, on the other hand, is marked by very low temperature, in the northern parts falling below 30°, and water freezing in tents. This great variation of heat and cold is experienced throughout the adjoining province of Rajpootana, in the Punjaub, in Oude, and even so low southwards as Agra and Allahabad. The climate of the upper part of the North-West Provinces is much like that of the Punjaub; south-west it merges into the moister heat of Bengal. Similarly the climate of Bengal merges into that of Madras, south of the 20th degree of latitude; where the distinction between the hot and cold seasons is comparatively lost, and where rain is a more frequent occurrence.

North of all these districts are the provinces of Cashmere, Ghurwall, Cabul, Nepaul, above which tower the lofty heights of the Himalayehs, presenting numerous localities for sanitary stations, for refuges for European children, and perhaps for colonisation, where the natives of colder climates may enjoy 'the delights of a lengthened spring, the bracing cold of a real winter, and the genial heat of a healthy summer.'

The soil of India, as might be expected in so great a tract of country, presents many varieties. In the plains through which the Ganges runs, it is a rich black alluvial mould. In other parts of Bengal there is a considerable extent of clay substratum. As the north-west and the Punjaub are traversed, the country becomes more and more sandy, and returning southwards through Bhawulpoor, Bickaneer, Marwar, into Guzerat, the whole surface is one vast sand tract. On the table land of the Deccan the soil is of various qualities, most generally loam or rock. Near the coasts it becomes sandy. In the province of Malabar, at the foot of the low hills or spurs of the ghauts, it is a reddish clay. On the Coromandel coast the sandy soil continues to the foot of the Eastern Ghauts, which are of granite, and present a frightful barrenness. Rocks of trap formation, sandstone, and quartz, are found in Malwah and Central India. The substratum of the soil in many parts of Hindustan proper is calcareous, in others clay or rock.

Such is a cursory view of the Indian climate, but it cannot be accepted as anything more than a most imperfect generalisation. As a consequence of neighbouring mountains, sea coasts, and sand tracts, most districts are found to possess a different climate, which is further influenced by soil; cultivation, water, jungle, and position. Thus local climates in India are more varied than at first would be supposed; and are consequently more or less inimical to the constitution of the European who sojourns in the different localities.

But it cannot be too much impressed on all Europeans in India that the diseases incidental to the climate may be often escaped, or at least modified in severity, by attention to ordinary general sanitary principles and to personal hygiene, especially by those newly arrived in the country. The Anglo-Saxon race is, perhaps, above all others naturally endowed with a resisting power against the evil effects of adverse climatic influences; and this power may be materially assisted by care, and by avoidance of evident causes of disease. Improved habits of life, and public sanitary measures of recent years, have already increased the value of both European and Native health in many parts of India.

In a hot climate the European must prepare to defend himself against three principal climatic enemies, and these are—1. Heat; 2. Malaria; and, paradoxical as it may appear, 3. Cold. Keeping these three causes of disease prominently in mind, he must next look to the quality of the *water* he drinks; to the securing of a proper amount of *sleep*; to the quality and quantity of the *food* he eats; to the amount of fermented *liquor* he consumes; to *exercise*; to *clothing*; to the *bath*; to the *house* he lives in, and its *ventilation*, and to the *conservancy* of his premises and neighbourhood. Lastly, he should be on the guard against excess of *mental emotion*, especially fits of passion, which have been known to precede, and perhaps induce, paroxysms of fever. These subjects are now considered separately.

HEAT.—Heat will induce disease both directly and indirectly. Directly, as when a fever or a sun-stroke is the result of exposure to the rays of the sun, or as when *heat syncope* or fainting, *heat asphyxia* or suffocation (*vide* article on *Sunstroke*, p. 369), are excited by the sultry atmosphere of the Indian dog-days, or by the hot and vitiated air of crowded barracks and hospitals. Hence the necessity of avoiding as much as possible exposure to the direct rays of the sun, especially during the summer season, when, if practicable, the European should remain under the shelter of a roof between the hours of 9 A.M. and 4 P.M. But such avoidance of exposure is not always in the power of every person. Work must be done, and the sun must be braved. The surveyor or engineer must sometimes be abroad at such seasons looking after his works; the soldier on active service must attend to the calls of duty, whether by day or by night; the doctor must obey the demands of his patients; the traveller pressed for time must proceed, whether the vertical sun shines fiercely, or the frost of Upper India appears colder than that of Europe. On such occasions protection of the head, back, and bowels is the principal means by which exposure may be rendered less inimical. Therefore the adoption of a suitable head-dress is a *sine quâ non.* But a material suitable for a head-dress which will admit of compression without injury, and yet resume its shape, which possesses the characteristics of strength, durability, and lightness, is still a desideratum. The common felt helmet is perhaps the head-dress best adapted to guard against a tropical sun. But unfortunately the felt helmet is expensive, and very liable to injury. The latter observation also applies to such material as cork, in a lesser degree to wicker-work, and more decidedly to pith. Thin leather is, perhaps, the only material, certainly the material more easily obtainable, most fulfilling the indications required. A low-crowned helmet, constructed of two layers of thin leather, is perhaps the most efficient head-dress. The summit of the crown should be sufficiently elevated not to touch the top of the head. Where the helmet fits the head laterally, the separation of the two layers should be about the same in extent as in an Ellwood's hat. Greater separation is not recommended for the following reasons:—If the space is wider, as in many pith or wicker-work hats, some of which are separated an inch or more from the wearer's head, the hot wind is allowed to pass in excess to the latter. As a consequence, the hair and scalp are maintained dry or drying by the immediate evaporation of the perspiration secreted, the head grows hot, and the person is thus predisposed to *coup de soleil.* On the other hand, if the head-dress is so made as to admit of but very moderate ventilation, the head is maintained moist. Ventilating hats with the outer layer widely separated from the head by pieces of cork or otherwise, are mistakes for wear during a long exposure in all districts where the hot winds blow. Near the vertex let the separation from the head be as wide as possible, but gradually narrowing to the sides of the head. The ideas prevalent, that the hair is injured by maintaining it wet with perspiration, and that baldness is thereby produced, are erroneous. A little extra cleanliness and care, with brush and comb, is only necessitated. Sunstrokes will seldom occur while the head is *wet*, but when *dry* there is every danger.

The leather helmet proposed will, of course, require a few holes in the crown. The front should be cut into a small peak, the back into a larger one, care being taken that the rim is sufficiently broad laterally well to shade the temples. The advantages of a leather helmet are its cheapness, lightness, comparative indestructibility, and absence of elaborate workmanship, the manufacture being within the capabilities of a very indifferent *moochee.* Moreover, leather in itself, being a good protection from the sun's rays, is also impervious to rain. If thought desirable, a metal rim or other ornament might easily be applied, and the leather could be stained to any colour. A leather helmet as above sketched should not weigh more than three-quarters of a pound, and therefore would not prove uncomfortable or oppressive if worn in the early morning or evening without the *puggree* or turban, required round the hat in the day.

The *puggree* or turban should be composed of some thin cotton texture. It should be at least seven yards long, and, when doubled twice, eight inches broad. This may be wrapped according to fancy round the helmet, taking care that the greatest number of layers are over that portion where the helmet comes in contact with the head. But this is not the only use of the turban. When travelling, it should be worn as a 'cummerbund,' or protection to the bowels and loins at night. Thus the turban would defend two vitally important parts at that period of the twenty-four hours when each most requires defence, viz. the bowels by night, and the brain by day. Also, when halting by day in the shade, with (as often is the case) a hot wind blowing, and converting the surface of the body into a kind of tatty, it is advisable to wind the turban round the bowels. This simple precaution will prevent chill, which otherwise may be the cause of bowel complaint. And for this use the turban is recommended to be sufficiently broad to reach pretty nearly over the whole bowels, and to be long enough to pass round the body several times.

But the protection of the head may be still further secured by either wetting the 'puggree' with water before going into the sun, or by placing inside the hat a layer of green leaves, of which the best is plantain leaf. And the protection of the bowels may be rendered more certain by the habitual use of a flannel belt worn over the parts. This, with the addition of the turban, at the times and under the circumstances indicated above, will reduce the chances of bowel complaint, at least from cold, to a minimum.

The protection of the spine is scarcely of less importance than that of the head. It is a fact well known to medical men that there is a species of *coup de soleil*, known as *heat asphyxia*, in which the origin of the evil is referable to the spinal cord. That part of the spine just below the neck, from which the nerves of respiration pass to the chest, becomes congested by the heat, the nerves become paralysed, the chest ceases to expand, and the person dies suffocated. Many of the cases recorded as sunstroke are, in fact, a species of heat suffocation. The extreme importance of protecting the back is, therefore, at once obvious. *A priori*, allowing the puggree to fall over the back would appear the most facile method of accomplishing the object. But there are several fatal objections to this mode of procedure. The weight of the puggree thus hanging down becomes after a time irksome to the wearer, who, when the puggree lies close to the coat, cannot move his head with the freedom he would in the absence of such impediment. Again, on wind blowing, the puggree moves its position, and ceases to afford the desired shelter. The floating ends are also liable to entangle in any adjacent object, sometimes flapping round the wearer's face, and perhaps obscuring vision at a critical time. What is required is a permanent and immovable protection for the spine; a protection which may be put on and off with the clothing. And this is to be obtained by placing a pad about seven inches long and three wide from the collar of the coat to about the level of the inferior angle of the blade-bone. This pad should be constructed of cork shavings, a material which, while acting as a non-conductor of heat, is light, and sufficiently soft not to occasion inconvenience even if lain upon. The shavings should be stitched, so that the position of the pad cannot alter. The thickness of the pad should be at least three inches.

But protection of the whole body from heat is also necessary. For short distances nothing is better than the 'chatta,' or umbrella. Yet this can scarcely be used when proceeding on horseback, when actively employed, or when in pursuit of game. But it should be recollected that what keeps cold out will, to a certain extent, also keep heat out. Or, stating the case more scientifically, what is a bad conductor of heat *from* the surface of the body, will be a bad conductor of heat *to* the surface of the body. Hence it is not advisable that the clothing of Europeans in India should be so thin as the majority of persons coming to a tropical climate would suppose. Light it should certainly be, but the texture should be such as, while not inconvenient from weight, will yet afford some protection to the surface of the body. For the equestrian even in the hottest weather nothing will be better than cord breeches and flannel shirt, with overcoat of flannel or cotton. When less active exertion is anticipated flannel is also still desirable (*vide* remarks on *Clothing*, p. 646).

Exposure to *indirect* heat must be guarded against by a sufficient ventilation of dwelling-houses, especially of sleeping apartments. And this should not be done by rule and measure. The number of cubic feet available as breathing space is a fallacious method of gauging the capabilities of a sleeping chamber. Except in the coldest weather of the coldest part of India, and in some positions and localities during the rains and unhealthy season, some doors or windows defended by chicks should always remain open. The sleeping cot need not be placed in a draught, but to one side, so that ventilation may be sufficiently secured without danger of chill. The punkah, thermantidote, and tatty are also (the former more generally) useful in guarding against the effects of heated atmosphere. In many parts of Southern India the punkah is always grateful by day, while the thermantidote and tatty will aid in reducing the temperature of the whole house. But they should be so placed that the wind passing from them does not blow forcibly and directly on the person, as various diseases, especially rheumatism and fever, not unfrequently result from sitting too near or sleeping in front of these contrivances. The night punkah is also very necessary in some parts of India, where the oppressive sultriness of the night forbids sound and refreshing sleep. But even this may become a source of danger. The punkah-puller is as likely to go to sleep as his master, when, the wind from the punkah ceasing, the European becomes drenched in perspiration. The punkah-man, suddenly wakening, commences a vigorous pull, and rapidly cools the sleeper by the evaporation thus produced—the result being chill, and its consequences. Or, while cooled by the action of the punkah on one side, the other half of the body in contact with the bed is wet with perspiration. The sleeper turns, and the process of evaporation, as above described, commences, with perhaps similar result. There are, doubtless, many parts of India where, from the extreme oppressiveness and sultriness of the night atmosphere at certain seasons, the punkah cannot be dispensed with, and the least of two evils, viz. the chance of chill and its consequences, must be chosen, instead of the certainty of the debility and destruction of health attendant on continued sleepless nights. But in the more northerly districts the punkah may often be dispensed with, and in such places as Bombay, and other localities generally favoured with the sea breeze, the punkah is scarcely required, except during the night, in the hot weather, and perhaps after the rains.

Sleeping in the open air would at least secure due breathing space, but it is a practice which cannot be generally recommended. In the more malarious and damper portion of the peninsula, such indulgence should *never* be permitted, as chills from land winds and sea breezes are liable to result, and as malaria is supposed to be more powerful during the hours of darkness than in the rays of the sun. But there are parts of India where sleeping in the open air during the very hot weather is permissible, if not actually more advisable than subjection to the uncertain action of punkah, thermantidote, or tatty. In those countries of Western India where the hot winds blow steadily in one direction by day, and where heated, if not hot, winds continue far into the night, the cot may with safety be carried into, and used in, the compound, with some chance of refreshing sleep.

Although by avoiding direct exposure, and by securing free ventilation and pure air, the various forms of sunstroke and sun fever may be generally escaped, there are still other and more insidious results from prolonged residence in a hot climate, which sooner or later show themselves in the constitution, more rapidly in some persons than in others, being in a great degree dependent, *first*, on natural constitution and temperament, and *secondly* on manner of life, especially as regards indulgence in alcoholic liquors.

Continued heat acts injuriously on the person of a native of a temperate climate in various ways, both through the nervous and the circulatory systems. On the nervous system it appears to have a *direct* depressing effect, evidenced by irritability and diminution of energy. On the circulatory system it acts in a different manner (although tending to the same results), and which may be thus briefly explained:—

The greater portion of the waste of the body, or of material which, having served its purpose within the body, must now be expelled, is passed off by the lungs and liver. The atmospheric oxygen taken by the lungs into the system unites in the delicate tissues of those organs with the carbon of the blood, which it thus cleanses of noxious or effete matter, returning it to the external atmosphere in the shape of carbonic acid. In a temperate climate, a full-grown man thus gives off with the breath about eight ounces of carbon every twenty-four hours. But the atmosphere of the tropics is, from the heat, more rarefied than in a cold climate, the result being that a given bulk of air must contain less oxygen in the former climate, than in the latter. As a necessary consequence, the carbon breathed out from the lungs in the shape of carbonic acid is diminished in quantity. Therefore some other organ must perform compensating work, or the blood must become charged with noxious carbonaceous material. Doubtless, if persons entering the tropics accommodated their living to the altered circumstances in which they are placed, such results might be to a great extent prevented. But, as a rule, endeavours of the kind are not made. People coming to India continue to live as before, or even take more rich food, or, in consequence of thirst, or under a mistaken idea of supporting the system, more ale, wine, or brandy, than they had been accustomed to consume in Europe. But the effete matter not required for the nourishment of the body must be removed from the system, and so the liver is excited to additional action. As a consequence the liver may become congested or even more seriously diseased; or failing to perform its function the bowels may be compelled to compensating action in the form of diarrhœa. Lastly, by the retention of carbonaceous matter in the blood, this fluid becomes depraved and deteriorated, and is, in fact, in a semi-poisoned condition. Lassitude and fatigue are felt on the least exertion, the skin becomes pasty, pale, or sallow, the circulation is languid, the nights are restless, the mental faculties are less vigorous, and the daily avocations are performed with difficulty. There is also predisposition to a variety of ailments, as boils, skin, spleen, or liver affections, or fever. There is no doubt that a large proportion of the diseases of the digestive organs, which are so prevalent among Europeans in India, results, in a great measure, from the habitual consumption of a much larger quantity of food, and this especially of a rich and stimulating character, than the system requires. The loss of appetite, consequent on the diminution of the demand for combustive material, is set down as altogether due to the debilitating influence of climate, and an attempt is made to neutralise this by artificial provocatives, which, while affording temporary relief, in reality pave the way to further deterioration. Such a debilitated condition may occur in those predisposed by constitution, temperament, and habits, within even a few months or years; or it may be deferred for a much longer period. But to the very large majority of Europeans living in India, notwithstanding frugality and care, the time arrives when this degeneration does occur. It is true, we occasionally see Europeans who have lived on the Indian plains for many years without change, and without loss of health or vigour. But these are exceptional instances, and only illustrate the inherent power against climate possessed by some constitutions. As a rule, the climate *per se* does, sooner or later, debilitate the European, rendering change to some cooler latitude imperatively necessary, and this debilitation will, as a rule, the sooner occur, the less careful as regards diet the person may be. (For further remarks on diet *vide* p. 640.)

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The principal hill stations (not including some purely military hill cantonments) are Abottabad, Almorah, Dalhousie, Darjeeling, Simla, Nynee Tal, Murree, Mussooree, and Landour, often called 'the hills north of Deyrah;' and Kusauli and Sanawur, all on the southern spurs of the Himalayan Mountains. Then there is Pachmarhi, in the Central Provinces; Mount Aboo, in Southern Rajpootana; the Neilgherry Hills, in Madras; and Mahableswar and Matheran, in the Bombay Presidency. The whole may be divided sanitarily into *extra*-tropical and *intra*-tropical mountain climates, the stations in the Himalayehs belonging to the former class, the remainder to the latter. All hill climates, whether within or without the tropical line, are characterised by a summer season from ten to fifteen degrees cooler than that of the plains, by heavy monsoon rains accompanied by much mist and damp (rendering Mahableswar and Matheran, in the Bombay Presidency, uninhabitable during this period), by glorious autumnal weather, and in the *extra*-tropical stations by a winter season much colder than that of the plains, with usually heavy falls of snow about the month of January. On the *intra*-tropical ranges of hills the cold season is much less severe, and the changes

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racteristics are fully set forth in books;* but here again a competent medical opinion is desirable.

MALARIA.—Malaria, although never yet isolated by the chemist, is, from inductive reasoning, admitted to be a poisonous emanation from the ground, and particularly from such surfaces as have been recently flooded with water, or on which there is rotten vegetation. It is, however, often found active in localities where little of the latter exists, as in the sandy semi-deserts of Western India, and on some rock formations. Malaria most prevails during, and at the termination of, the rains, when the sun emerging from the monsoon clouds causes the drying-up process to commence. It is most active during the hours of night, and least so in the day, when many places dangerous by night may be visited with impunity. It is also more potent near the surface of the ground than at any elevation, and its progress, generally with the wind, is impeded by trees, by water, and by artificial screens, as gauze netting.

N.B.—*For a longer description of Malaria and its characteristics, vide* AGUE, p. 203.

From the above, and from the statements made in the reference given, it is sufficiently evident that the measures to be taken to guard against the effects of malaria—generally malarious fevers or spleen disease, or malarious cachexia—are principally based on the avoidance of those localities in which malaria most prevails; or at least on avoidance of those localities in which residence or travelling is shown by experience to be most frequently followed by malarious maladies. Whether we regard malaria as a specific poison or entity, or whether we regard it as something yet undiscovered, there is no manner of doubt that certain diseases do arise in certain localities, and that such diseases may be lessened or even altogether prevented, by certain agencies,

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* *The Principal Health Resorts of Europe and Africa.* By Dr. Madden. Published by Messrs. Churchill, London.

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ust be avoided. When either the body or mind is more han ordinarily fatigued, malaria is more likely to produce ad effects. Similarly, depressing passions, as anger, grief, nd prostration after intoxication, render the body more liable malarious affections, as in fact to any other disease.

The use of alcoholic or fermented liquors is not, howver, to be entirely forbidden. When journeying by night hrough known malarious districts—which during the monon and after this season comprise nearly the whole of ndia—two or three table-spoonfuls of brandy not too much iluted will be beneficial. The stimulus thus afforded will ive temporary support and lessen fatigue, by preventing too apid waste of tissue. The quantity is not sufficient to inuce subsequent depression, while the advantage of local tomachic, and slight general stimulation is obtained. It worth mentioning, that a stiff glass of brandy and water ill sometimes cut short an incipient attack of ague. It hould, however, be taken at the very commencement of the old stage, otherwise it will be more prejudicial than benecial. French doctors especially report favourably of this lan.

Coffee is a useful beverage as a prophylactic against alaria, but is more adapted for general use during unhealthy asons than for occasional consumption when passing through verish districts. Coffee infusion is invigorating, and does ot induce subsequent depression, the effect being confined to he first nervous stimulation. It is stated that an infusion f unroasted coffee is a more powerful antiperiodic or remedy gainst malarious influences than the roasted berry, and an fusion of the former may therefore be taken in malarious calities and seasons.

Tobacco smoking has been stated to exercise some preserative influence, and taken in *moderation* it may prove benecial. It is well known to physiologists that tobacco, like ea, coffee, and alcohol, restrains the waste of animal tissue,

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cality. It may be taken in water, with a few grains of itric acid, or with a few drops of dilute sulphuric acid. If ixed with coffee the bitter taste is somewhat disguised. Or t may be taken in a little sherry wine. A wine-glass of ilk punch is a good vehicle, as it neutralises the taste of he quinine more than any other agent. Thus prepared, uinine may be taken with advantage just previous to meals. hould the taste be deemed an insufferable objection, the uinine may be formed into pills with a little gum water; ut it is not so effectual when taken in this shape, unless a arger quantity of quinine is used. The continued use of uinine in this manner is in no way injurious; although if he doses are too large, temporary singing in the ears, head-che, or even deafness may ensue. Also in some few consti-utions, quinine induces an affection of the skin resembling ettle rash, causes sore throat, or gives rise to some other istressing symptoms (*vide* p. 18). Persons thus by pecu-iarity of constitution prevented from using quinine should ake three or four drops of the *Liquor arsenitis potassæ* nstead: this remedy to be taken *after* and not before meals, s advised for quinine. Or the new preparation *cinchona lkaloid* may be tried (*vide* p. 20).

Particular care should be taken not to drink water from ells or pools in which leaves or other decaying matter may ave fallen. If necessitated to use such water, it should irst be boiled, and then filtered through sand and charcoal. here is strong evidence, both positive and negative, tending o prove that water may hold malaria in solution, and that he poison may thus be introduced into the system.

It has already been remarked, that malaria is more ctive or powerful during the hours of night, than during unlight. And it is a well-known fact, that the human ystem is more likely to become impressed by any cause of isease during the relaxed condition of sleep, than when wake and in action. It is also well ascertained, that individuals who have once suffered from malarious fever may experience a relapse by imprudent exposure to cold. Hence the necessity of using, both by day and night, tolerably warm clothing, and especially flannel, than which no substance is better adapted to preserve the surface of the body from sudden changes of temperature, so often occurring in India, and especially during the night. It has been asserted that malaria not only enters the system by the lungs and stomach, but may also be absorbed through the pores of the skin. When we recollect that every square inch of the latter organ contains upwards of 3,000 pores, and that thirst may be immediately relieved by immersion in water, which passes *into* the body through these pores, in the same manner as perspiration passes *out*, the theory that the skin may absorb malaria seems plausible. As a protection against this presumed danger, equally as against sudden vicissitudes of temperature, flannel is the best material, whether by day or by night.

Malaria is also presumed, from its effects, to be heavier than atmospheric air. Instances are numerous where those living in lower storeys suffered from fever, while residents in the same locality living in upper rooms, retained their health. This was painfully demonstrated at the Padua Hospital, at Guadaloupe, at Seringapatam, at Barbadoes, and in Calcutta in 1863, when the fort ditch was allowed to empty itself, and the inhabitants of adjacent lower storeys suffered, in consequence of the noxious emanations then generated. It was stated in evidence before the Royal Sanitary Commissioners, that soldiers lying down intoxicated in China, frequently died from the combined effects of drunkenness and malaria. Both in France and Italy, instances have occurred of labourers dying almost immediately, from merely sitting or lying on the ground in the immediate neighbourhood of a malarious ditch or ravine. Only recently, in the columns of the 'Indian Medical Gazette,' Dr. Fayrer reports a case of malarious poisoning in Calcutta, where death occurred in a few hours. In short, there is remarkable unanimity in the opinions, that malaria may both kill with great rapidity, and that it is most powerful near the surface of the earth. The damp and mist of night, or rather the descent of dew, has been presumed to retard the rise of malaria, and this mist is frequently only observable a few feet above the ground. Hence the desirability of sleeping in upper rooms in extraordinary malarious seasons or localities, in order to escape the probable concentration of malaria near the surface of the ground.

Other personal hygienic, or general sanitary regulations, tending to preserve from the effects of malaria may be briefly mentioned, as follows:—Avoiding the cold bath when liability to febrile attacks is present, or when the body feels cold, and a warm glow or reaction does not occur after the bath. Avoiding, in every way, unnecessary exposure to colds and chill. Among general sanitary regulations may be brought forward, attention to the disposal of bath-room water, which should not, as is so often the case in India, be allowed to sodden the ground in the neighbourhood of the house. *Secondly*, care not to live under rotting chuppers or thatch. *Thirdly*, not to permit garden ground in the vicinity of the dwelling to become sodden and saturated by *over-irrigation*, as it then becomes a very fertile source of malaria, although harmless when only sufficiently watered to assist the growth of vegetable life. *Fourthly*, taking advantage of the power forest trees are known to possess in preventing the passage of malaria from one locality to another; and which should, therefore, be planted between dwellings or inhabited places and adjacent malarious localities, as swamps and marshes. The *Eucalyptus globulus*, or Australian blue gum tree, and the common sunflower, are both stated to possess great power in absorbing the malaria of marshy places. *Fifthly*, taking care that the locality is well drained, so as to prevent regions.

CHILL or **COLD** is i
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the methods of protection from chill are so apparent that further remarks must be superfluous; while observations on the material for clothing will be found under that heading, page 646. The brevity, however, with which this subject is treated must not be accepted as any index of its importance; for some authors have not hesitated to question the existence of malaria, attributing all so-called malarious diseases to chill alone.

Unfortunately for this argument, chill or cold will not excite *per se* an attack of ague; but experience has shown that it is quite sufficient to *re-excite* attacks of fever in the person who has once suffered from the disease. In short, exposure to cold, and especially to *damp* cold, is perhaps the most prolific source of disease in the tropics; meaning by cold not a lowering of the temperature to the standard of temperate regions, but those sudden alternations from a very high to a lower standard, so common, especially about the monsoon seasons in India. Whenever, as so often occurs in the autumnal and winter seasons, cold nights and hot days characterise the climate, then, without suitable protection by change of clothing, there will be danger of disease—fever, dysentery, or diarrhœa; and more especially so when the atmosphere is also damp.

WATER.—Keeping these three prominent causes of disease, viz. *heat*, *malaria*, *cold*, constantly in mind, attention to the drinking-water becomes one of the next most prominent individual hygienic duties. And when it is recollected how many diseases may be introduced into the system through the medium of water, it will be evident that too much care cannot be exercised in procuring a pure supply of this important necessary. Thus, as already mentioned, ague has been known to occur apparently from the use of impure water. Spleen disease may originate from similar cause. The introduction of the guinea worm into the system is, probably, always by water. Dysentery and diarrhœa are excited by water containing both animal and vegetable impurities. Dyspepsia will occur from a similarly impure fluid. Stone in the bladder, Derbyshire neck or 'goître,' are other results of the continued use of bad drinking-water. Both cholera and typhoid, it is believed, may be propagated by contaminated water. The introduction of worms into the blood, by the agency of musquitoes and water, is referred to at p. 552. When the filthy habits of many natives, as regards drinking-water, are borne in mind, the European will find a personal supervision of his own supply the more incumbent. Drawn from a well generally uncovered, containing all kinds of impurities, and on the verge of which, or even in which, Natives wash themselves and their clothes; or, still worse, taken from a tank in which men and women and animals drink, bathe, wash, wallow, and otherwise defile, the water next passes into the Bheestee's mussack, a receptacle made of untanned hide, and which is probably never cleansed until rottenness from age and use renders its opening and repair positively necessary. Such water, if the European did not vigorously protest, would be daily given him to drink. Even vigorous protests would only result, as a rule, in the addition of another odour or taste to the fluid, by straining through a dirty cloth. Hence the necessity of insisting on drinking-water being subjected to a filtering process, and of frequently personally supervising such process. Filters may be constructed in the form of three common 'gurrahs' placed one above the other, on a tripod stand, the two upper ones filled with layers of sand and charcoal, the lower one empty to receive the water straining through small holes in the bottoms of the others. Or what is preferable, a magnetic filter may be purchased, either sufficiently small and portable for camp use, or large enough to filter any amount of water. But it must be recollected that all filters become, in time, foul and dirty. The home-made 'gurrah filter' of sand and charcoal will require changing at least *monthly*; others according to size and capability, which may be ascertained when purchased. For travelling, the porous stone bottle is a good filter. Placed in a 'gurrah' of water, the fluid quickly finds its way into the interior of the filter, and drinkable water is obtained. A small portable syphon carbon filter may also be useful on journeys, when servants are not in attendance.

Filtering water should never be neglected in India, however pure and sparkling the fluid brought may appear. Although seemingly unexceptionably pure and tasteless, it may still contain atoms deleterious to health, such atoms not being perceptible to the senses. That the invisible germs of cholera, the ova of guinea worm, or the active spores of other maladies may exist undetected in water, will not create surprise, when it is recollected that a single drop of water may contain five hundred millions of living infusoria, a number equalling that of the whole human species now existing on the face of the earth.

If it be desired to render water as pure as possible, to reduce the chance of the introduction of disease into the system by water to a minimum, the practice of boiling previous to filtering it will be adopted. Water, to be rendered as pure as possible, should be first boiled, then allowed to cool, and afterwards filtered. Boiling will not only destroy most organic impurities, but will also cause the deposit of inorganic salts or material held in solution. Neither does the double process destroy the taste and pungency of the water, which is restored during the time it is filtering by the reabsorption of air by the fluid. The desirability of both boiling and filtering drinking-water cannot be too strongly insisted upon.

Condy's Fluid is useful for purifying water when boiling and filtering are not practicable, as on active service, or on sporting expeditions. Six or eight drops, added to a gallon of water, will purify it, and render it more fit for household purposes. Condy's fluid is of a beautiful purple colour. When added to impure water the purple colour becomes brown, which forms a means of roughly testing the purity of water.

The *Strychnos potatorum* fruit (Hindustanee name, *nirmulee*) is also useful, and often employed by the Natives to purify water. One of the bulbs is cut in half, and the freshly exposed surface rubbed on the inside of the vessel. It acts as an astringent, and will to a certain extent cleanse dirty water, but the water must stand some hours.

As a necessary result of the heat of the climate, and of the consequent constant evaporation of moisture from the skin, Europeans are more thirsty, and require more fluid as drink, than in their own country. But the practice of drinking largely, even of water, is not commendable. Thirst should be as much as possible striven against, otherwise a habit of drinking deep draughts is contracted, which habit eventually tends not only to weaken the digestion, but also to debilitate the skin, by the increased perspiration following excessive drinking. To allay thirst, however, there is no better beverage than cold, but not ice-cold water. The evil effect of swallowing a large quantity of cold water when the body is heated is popularly recognised, but it is not understood that whatever harm a large quantity of cold water may do, a smaller quantity of ice may effect. If ice is placed on the back of the hand for a short time, the skin becomes pale, then reddened and hot. That which can be seen on the skin happens in the stomach, and hence the habit of taking ice-cold drinks must congest the coats of the stomach and favour dyspepsia. With this condition, thirst returns in a double degree, and the relief gained by successive draughts is too dearly purchased. The startling pain in the forehead, which an ice may cause, shows the effect it may have on other parts. Neither should the injury to the teeth be ignored. There can be no doubt, that persons in India, where ice is plentiful, se what would otherwise be a tonic to the stomach and rstem, so profusely, that it proves injurious in various ways. Vater, and iced water particularly, should be rather sipped ian swallowed by tumblerfuls, and this especially when the erson is heated; urticaria or nettle rash and many other kin diseases not unfrequently following indulgence of this ind, even when worse evils are escaped.

Many persons are under the impression that by drinking erated water they will escape the ills so often the consequence of an impure water supply. This, unfortunately, is ar from being the case. For soda-water manufacturers in ndia are sometimes not very particular what kind of water hey use. It may contain lead, or oil from the machine; and f filtered, which is often neglected, the water thus aerated is eldom if ever boiled. Greater safety will be secured by ersonal supervision of the drinking-water than by the eneral use of the so-called soda-water of the shops. imilarly, when it is mentioned that there are infusoria hich retain vitality in boiling water, enough will have been aid to dispel the very popular delusion that the addition of randy or other liquors to bad water will render it potable, r even less injurious.

SLEEP.—It has been well observed by a medical author, hat not to sleep in comfort in India, is to prepare the ystem for disease. Yet in this country there are many indrances to the European obtaining that amount of refreshng slumber which is so desirable. During certain months of he year, when the nights of the monsoon season are moist nd 'muggy,' the European, after a restless and disturbed ight, arises tired, languid, and unrefreshed. In the fierce ot weather of Upper India, heated winds blowing almost to lawn, often accompanied by dust and sand, produce similar estlessness. Then in most localities there are musquitoes, vhich, although so small and apparently insignificant, are apable of preventing, or at least disturbing, the slumbers of most Europeans. In addition, dinner taken late, from convenience or other causes, tends to produce restless nights. One or two nights of disturbed sleep would not, of course, much signify to the average robust European; but when the causes are in operation for months together, the frame becomes debilitated, and is therefore placed in the exact condition most favourable to disease. And, as before stated, malaria is most powerful during the hours of darkness, or when the individual is most debilitated and distressed by vainly tossing throughout the night on a sleepless couch.

The measures to be adopted to secure comfortable sleep in India resolve themselves into protection from heat, from musquitoes, from thirst (often the consequence of improper diet and late dining), and from malaria. Protection from heat is to be attained by sufficient ventilation of sleeping rooms, by the judicious use of the punkah, or other artificial means of cooling the atmosphere, regarding which no more need be said than has been advanced at p. 620. By sleeping in upper rooms when practicable, where, at some elevation from the ground, air is often in motion, while all below is stagnant. By sleeping in some localities and seasons in the open air, as also mentioned at p. 621. Protection from musquitoes may be secured either by the musquito curtains, or by the punkah, or by an elevated and breezy position, as is often afforded by upper sleeping apartments. Protection from malaria has already been considered (*vide* p. 627).

DIET.—Vegetable food is, generally speaking, better adapted to a tropical climate than animal food; not that it is quicker or easier of digestion, for it is slower, but because it excites less commotion in the system during that process, and is not so apt to cause plethora. Such considerations should induce the European, especially when newly arrived, to partake sparingly of animal food, which is not required by the system to the same extent as in a temperate climate.

It has already been explained (p. 622) that carbonaceous material (of which meat, milk, eggs, fatty substances, contain a large proportion), taken into the system, is removed chiefly by the liver or the lungs, and that in a hot climate the lungs are less and the liver more instrumental in this process. Hence (as one means of avoiding disease of the latter organ) the urgent necessity of caution as regards quantity of food taken. Less meat and more vegetable matter should be the rule. But following the example of some classes of the Natives, and abstaining from meat diet altogether, is not desirable; for this procedure, which has been sometimes recommended, is based on a misconception. The custom of ages has habituated the Hindoo to taking large quantities of rice with pulses or corn; but a European would not digest this diet. Its bulk alone would prevent perfect digestion, even if aided by the large amount of chillies or other condiments taken by the Native; which, in the unaccustomed stomach of the European, would probably induce indigestion rather than the reverse.

It can scarcely be necessary to lay down rules of diet, but some cautions may with propriety be added. Of all things, the most necessary is to remember neither to eat too much, nor from too many dishes. The more simple the food is, the better and longer will the stomach prove a good servant, rather than, as occurs when dyspepsia becomes confirmed, an irritable master. Avoid also eating too quickly, and masticate the food thoroughly, applying to the dentist for aid, if the state of the teeth does not permit the grinding of the food. Also let all food taken be, although simple, of the best quality obtainable. The following quotation from Sir Ranald Martin's work 'On Tropical Climates,' although lengthy, is so apropos that its insertion here seems excusable:—

'The newly-arrived European should content himself with plain breakfast of bread and butter, with tea and coffee, and avoid indulgence in meat, fish, eggs, or buttered toast.

The latter alone often disagrees and occasions rancidity, with nausea of stomach, while it increases the secretion of bile, always in excess. A glance, indeed, at the "Bawurchee" buttering our toast with the greasy wing of a fowl, or an old piece of rag, will have more effect in restraining the consumption of the article than any didactic precept that can be laid down.

‘In regard to dinner, were the European master of both time and circumstance, the early part of the afternoon should be that of his principal meal; but the great majority of men of business, whether official or mercantile, are unable to disengage themselves during the day, and thus from seven to eight o'clock becomes the settled hour.

‘It is true that military men, excepting such as hold staff offices, may choose their hour of dinner, but fashion and routine rule this and other habits, and the mess hour is too late. Naval and military men are, beyond all others, devoted to system, and to a certain extent justly so. But system, like everything in this world, may be abused so as to degenerate into something even worse than mere routine. As matter of fact, regiments in general have luncheon ("tiffen") on table at one o'clock, with wine and ale, and a heavy dinner at seven, with more wine and ale. Thus any officer who is so disposed may become the subject of a daily feverishness, soon to be followed by disease; and even such as are temperately disposed commit excesses in eating and drinking, often without being aware of it.

‘An old staff officer in Fort William used to say that he had known more duels, courts-martial, and dismissals, to result from the "tiffen" alone than from any other cause; but what were the other results, in the olden times, of the "tiffen" and the dinner from year's end to year's end, there is no man alive now-a-days to tell! Although a great deal that was objectionable in the double meal has given way to modern improvement in the general habits of society hout India, still too much of both tiffen and dinner ıs. Both meals are greatly too much after the ·an fashion, while wine and ale are too liberally ted, at least for health.'

e importance of looking to the condition of the cooking ıd pans used in the Indian kitchen, must not be for- . The utensils used are copper, and when properly with tin, are quite harmless. But the tin wears off , and, exposing the copper, may lead to copper-poison- the food; the symptoms of which are usually pain in wels and diarrhœa, and, if much copper is taken into stem, also vomiting. If the cooking pots are not ly *clean*, as well as not properly tinned, the chance of -poisoning will be increased, in consequence of the more ormation of *verdigris*, by the action of the acids and ı the food remaining in contact with the metal. g pots used every day should be tinned at least every , and examined periodically, in order that it may be ıined if the tinning is required more frequently. But s not even a sufficient precaution. Lead is much r than tin in the Indian bazaars, and the tin-workers metimes employ an alloy of tin and lead, instead of rmer metal, to the great prejudice of health. The oms of lead colic, or poisoning, are noted at p. 114. either copper, or lead, or both, may be taken into the with the food daily, in very minute quantities, for an ııte period. The characteristic symptoms of poisoning ıer metal may not present in the unmistakable manner results from large doses; but there is reason to s that many cases of anomalous illness are either alto- due, or are aggravated by, these often unsuspected

e protection of food from the myriads of flies abound- India is urgently necessary; for no one can tell on

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drinking, especially of consuming brandy and water, is one which insidiously grows upon the person so indulging, and from which disastrous results only too frequently proceed. Physiological science and experience alike teach us that the condition of system most favourable to the invasion and development of zymotic poisons is set up by the presence in the blood of organic matter in a state of change, decomposition, or fermentation. Hence the blood of the intemperate charged with alcohol is in the condition *par excellence* favourable to attacks of such maladies as fever, cholera, and sunstroke. The liver also is liable to become affected from too much indulgence in spirituous liquors, and the bad effects of the same agents on the brain might be portrayed with even greater force. But the loss of memory, the impaired intellect, the miserable thoughts, the imbecility, the loss of physical energy, so frequently resulting from chronic alcoholism, need not be dwelt upon here.

Although so strongly condemning the practice of constantly using alcoholic beverages, the opposite extreme of teetotalism is not recommended. As a rule, Europeans in tropical climates require some amount of fermented drink as part of their daily sustenance. This is particularly the case with the old resident, and during the hot season, when the heat destroys the appetite, and exerts its depressing and deteriorating influence on the system. When the quantity of solid food is not sufficient to supply the waste of tissue, and to counteract the 'wear and tear' of body—which it often is not during the exhaustion and loss of appetite caused by intense heat—an additional supply of wine may be taken with advantage. But this can only be safely used for its tonic effects, and not for the temporary stimulation it affords. It is, indeed, the use, and not the abuse of fermented liquors, which is so much required. Moderation, instead of excess, is the great desideratum. But what moderation may be it is difficult to decide, so much depending on age, sex, temperament, habits, and occupation. From experiment it appears that the body of a strong healthy man is capable of *appropriating* in a temperate climate two ounces of alcohol daily, as a *maximum*. If more than two ounces is taken, it may be chemically detected in the urine and breath. In a tropical climate, the power of appropriating alcohol is lessened. Approximately, two ounces of average brandy contain upwards of one ounce of alcohol; of sherry about eight ounces, of champagne fourteen ounces, of claret sixteen ounces, of bottled beer eighteen ounces, contain one ounce of alcohol. It will therefore be understood that the limit of appropriation of alcohol by the system may be reached by very moderate indulgence in wine or spirits. And there is every reason to believe that the limit of *benefit* to the system from alcohol, is arrived at long before the limit of *appropriation*.

EXERCISE.—A due amount of exercise in India is even more necessary to health than in England. As a rule, it may be stated that the most healthy people are those who take exercise regularly. The circulation of the blood is thus equalised, and the tendency to congestions, particularly of the liver, is often thereby checked. There is, however, a very general feeling of languor, torpor, and inactivity, the effect of heat, which prevents many people taking that amount of exercise which is desirable. Walking, riding, shooting, badminton, are the best exercises—cricket, boating, tennis, rackets, involving for the majority too great a strain on the muscular system. Whatever exercise is taken, it should not be sufficient to induce exhaustion or fatigue. Extremes of exercise should be as far as possible avoided during seasons of epidemic, as the exhaustion thus induced tends to predispose the system to epidemic diseases.

CLOTHING.—The quality of dress in India depends in a great measure on the season and the part of India in which the wearer is located, and more especially on the duties to be performed. The resident in the south will not at any period of the year require the warm woollen clothing necessary for those residing during the cold season in the northern provinces. Neither will the man devoted to office-work want the strong durable material desirable for the classes employed in outdoor occupation. Generally, light tweeds are the most useful wear in India; but every person should possess warmer clothing, which may be required at any time. Under-clothing is of more importance as regards health than external clothing, and, as already recommended, this should consist of flannel next to the skin. It is one of the best safeguards against fever, dysentery, and various other disorders. When the body is heated, a profuse perspiration wets the clothing, evaporation follows, checking the perspiration, and causing chill, and so originating numberless cases of illness. But chill is much less likely to occur when flannel is used. Evaporation takes place more rapidly from cotton and linen than from wool. Neither does wool absorb moisture so readily as cotton. If a piece of flannel is stretched over a glass of water so that it just touches the surface of the fluid, scarcely any moisture will be taken up by the flannel. Linen or calico so placed will quickly become saturated. This explains the fact of chills more quickly occurring with linen or cotton than flannel clothing. Perspiration penetrates at once to the external surface of the linen, and is acted upon by the atmosphere. With a woollen garment perspiration is more retained by the texture, and absorbed more gradually, and thus not so quickly evaporated from the surface.

Wool, again, is a non-conductor of heat. Put a woollen sock on a warm foot in winter, and the foot will keep warm much longer than if covered with a cotton one. For the same reason—because wool is a non-conductor of heat—a woollen shirt will keep the wearer cooler in a heated atmosphere than a linen one. This is susceptible of direct with linen or cotton. A with the laws of nature; materials—possessing as t lated to protect from at natural clothing of anima also of affording more pro of which has been already linen, silk, or cotton, whic protection in this respect.

BATHING.—The daily Indian life, and when th recollected, and that in ev some 3,000 perspiratory po this organ becomes suffici little tubes, there are large n an oily substance, which is orifices to the surface of t lubricates, while freeing t required in the system. I spiration are left undisturb come blocked up, a safety v malady is almost certain as a general tonic, imparting or maintaining vigour and energy, and fortifying the system against the influences of climate. As a rule, cold water is best for bathing purposes; but whether cold, tepid, or warm water is used, must be decided by the effect produced. There are many persons who after a cold bath feel a pleasurable glow and healthy reaction over the whole surface. To these the cold bath cannot fail to be beneficial, both as cleansing the surface and as a general tonic to the system. On the other hand, there are numerous individuals who after a cold bath feel depressed, languid, and as if shrivelled, and whose cutaneous surface does not answer the shock of the cold water by any reaction. If this occurs, or if the fingers become at all cold or white after bathing, cold water must be abandoned, and tepid, or even warm water substituted. Women who have miscarried should avoid too cold baths; neither are they advisable immediately before, or during the monthly period. Some persons will bear a hot bath in the warm weather, but not in the cold season, and this peculiarity should always be attended to. But the extreme of too hot water must be guarded against, otherwise gradually the habit of bathing in very hot water will be contracted, to the enfeeblement of the skin and weakening of the system. Bathing in 'chunamed' baths is not to be recommended, as the water there is often very cold, and the shock may be too great. Many persons have with truth dated the origin of fever or 'liver' to an imprudent plunge. Where there is a large lake or river, free from crocodiles, leeches, or other dangerous living things, bathing may be safely indulged in, with necessary precautions against the sun. When thus bathing, the body should be a little warm, not chilly, and the plunge should be made at once. The best time for bathing is a couple of hours after a meal. Bathing should be avoided when suffering from fatigue; and on leaving the bath, although the person may feel invigorated, too violent exercise should not be taken.

Sea bathing is not often practicable in India, but in many cases of debility sea water may be beneficially used. For temperature of baths, *vide* p. 599.

HOUSES.—Europeans in India seldom have much choice of a house, the number of bungalows in each up-country station being generally exceeded by the number of residents. And it must be confessed that the majority of these Indian bungalows are not what is requisite for health or comfort. Although often affording sufficient space, they are frequently not at all raised from the surface of the ground. Sometimes there is only an earthen flooring. They are mostly constructed of porous material, as inferior or sun-burnt bricks and mud, and they are in many localities covered with an old, sometimes rotting, 'chupper,' or thatch. As a consequence, during the monsoon—especially in those parts of the country where the rains are heavy, and the atmosphere saturated with moisture—damp rises from below, and damp permeates into and percolates through the walls, while not unfrequently the vitiated atmosphere caused by a mouldy rotting thatch, is even recognised by the sense of smell. Most Indian bungalows in Mofussil or up-country stations have been originally built hurriedly, and as cheaply as possible. The majority of occupants being but temporary sojourners, few have cared to expend much money on dwelling-houses, for which expenditure a remunerative return would be uncertain. Similar motives have also influenced Natives, when becoming owners of houses tenanted by Europeans. Even many of the best houses will be found to have attained their present dimensions by periodical additions to small temporary erections.

It is impossible to frame any rules for the construction of a dwelling-house adapted for Europeans, and suitable for every part of India, as both the material available and the climate, differ much in various parts of the country, necessitating modifications of any standard plan. This has been found to be the case with European soldiers' barracks, so that the structures most adapted for the purpose in Southern India, are now generally admitted to be less fitted for the northern parts of the peninsula. *Speaking generally*, it may be stated, that a dwelling-house in India should be elevated some four or five feet from the surface of the earth, by which greater freedom from damp and greater coolness are secured. Raising the house above the surface of the ground, also tends in some degree, to prevent the entrance of snakes or other noxious living things; for although snakes will easily ascend steps, they are not so likely to pass up a comparatively narrow flight of steps, as into a house having doors opening flush with the ground. The walls of the Indian bungalow should be of masonry, as thin as compatible with strength. The idea so prevalent, that very thick walls prevent heat, is a mistaken one. Massive walls, once thoroughly heated by the sun's rays, do not cool during the hours of night, or indeed, scarcely until the cold weather is well advanced, and until their temperature is so diminished they do not cease to radiate heat on the occupants. Some degree of solidity is of course necessary for protection from the sun, but this may be obtained by the same thickness of wall desirable for strength, and which should not be exceeded. The best material for floors in private dwellings is either smoothly hewn stone of a non-porous description, Venetian tiles, or thirdly, 'chunam.' But the latter is liable to break up, and to require constant repairs. Either of these floors possesses the advantages of cleanliness, of coolness, and of not affording cover or crevices for snakes or scorpions. It may be here mentioned, that with such floors, the carpet need not approach within a couple of feet of the walls, and does not require nailing down—a plan not only permitting the carpet to be taken up easily and frequently for cleanliness, but also affording additional protection against snakes and scorpions, which may insinuate themselves between the wall and the edge of the carpet where the nails securing the edge have, as they probably will do, 'started,' and rendered the carpet loose. With regard to the upper structure or roof, all things considered, there is nothing better than well-made and well-fitting tiles, which should be large enough and heavy enough to prevent mischievous crows displacing them from position. Instead of lath and plaster ceilings, 'chuts,' made of white-washed cotton cloth, are commonly used in India. To this arrangement there is no objection, provided the chuts are well secured, so as to prevent ingress into the space between the roof and ceiling of sparrows, bats, or pigeons.

Similar care must be taken that all apertures between the wall and overhanging roof, or eaves, are well stopped; otherwise not only birds, but animals, such as squirrels, rats, bandecoots, and cats, will find their way into the interior. Such intruders dying in the roof, sometimes give rise to much trouble, and to disagreeable if not unhealthy effluvia; while the noise they make, especially at night, is anything but pleasant, or conducive to repose. As a general rule, Indian houses should possess one or more chimneys and fire-places. Such apertures not only tend to the ventilation of the apartment, but in southerly India fires may sometimes be advisable on account of damp, while in the more northerly parts they are always acceptable, if not actually necessary, during the cold weather. Verandahs are an addition which cannot be well dispensed with, and their breadth can scarcely be too great. The roof of the verandah should descend within seven feet of the raised plinth, and should be supported by thin pillars. If sustained by thick pillars, the latter retain the heat, and thus add to the warmth of the house. Heat and glare, which massive verandah pillars are supposed to diminish, may be better lessened by a succession of coarse chicks attached to the apertures. Doors and windows, of which there cannot well be too many, should also be furnished with chicks opening in frames—serviceable alike keeping out glare and insects. In the districts where rmantidotes are used, the thermantidote hole must not be gotten; and this should be placed rather lower than usual, which the cool air is distributed more equably over the m. Lastly, the colouring of the inner walls should be a ıtral tint, instead of the rough, glaring whitewash so often n.

The site and position of a house must also claim atten- n. As regards site, the first thing to look for is good ;ural drainage, and therefore a slight elevation of the ound will be the preferable locality. But the surface of ne parts of the country is so flat that this desideratum nnot always be secured—so level, indeed, that drainage not even possible—and where this is the case elevation of dwelling-house above the ground is the more requisite. e facility of procuring water for garden purposes, the ximity of trees, not overhanging the house, but affording ide in the immediate neighbourhood, the windward posi- n to any marsh, stagnant pond, or Native village, a gravelly l in preference to black or clay soils, a dry substratum of l not saturated with water, the absence of rocks or over- nging hills in the vicinity, which would radiate heat on house, are all desiderata which should be borne in mind, d if possible secured.

The position of the house is to be determined by two nditions, namely, the direction of the prevailing wind, and diurnal sun line. But as these do not generally corre- ond, that position should be taken which will secure the eatest amount of perflation by the prevailing breeze, and minimum of sunshine passing directly into the house. us, supposing the prevailing wind to be, as in the Western esidency, from the south-west, and the sun line almost e east and west, the narrow or gable ends of the bungalow ould be directed easterly and westerly, but with inclination the south. Thus while the prevailing south-westerly breeze would pass at an angle through the house, the maximum of sun would be on the gables, and the minimum on the front and back of the bungalow, where the largest openings must always be, and where shade is most desirable.

But, practically, it will happen that in most parts of India, even if anyone were willing and able to incur the trouble and expense of building a house as sketched above, he would be unable to do so from absence of material, or climate would demand some modification. For instance, in Lower Bengal and in several parts of the other Presidencies, not only elevation above the surface of the ground, but upper sleeping rooms, are desirable as protection against malarious influences. In other localities an absence of lime may necessitate mud masonry, and then the walls, to secure the necessary strength, must be more massively constructed. Again, in very damp climates, wooden boards are a better flooring than either stone, tiles, or 'chunam.' In some parts of the country, tiles for the roof not being procurable, a date leaf, or thatch roof may be necessitated, or it may be convenient to use the roof so often seen in Persia, composed of empty 'ghurrhs,' or earthenware jars set in lime plaster. Fireplaces, again, may not be desirable additions in localities where the temperature is peculiarly hot, dry, and equable. In the matter of position, the endeavour to catch the prevailing breeze and to avoid the sun's rays may sometimes require relaxation; as on the sea coast, for example, when the entrance of a little more sun into the front or back of the house may be more than compensated for by free passage of the sea breeze. And so on might be mentioned many details in which available material or climate would cause modification.

With respect to space and size of rooms, it may be at once stated that rooms in Indian houses cannot be too spacious. The cubic space in European barracks found necessary for the soldier is 1,800 feet per man in the dormitories, and private houses should not give a less proportion. In European hospitals 2,400 cubic feet are allowed, and this may be remembered as a hint of the greater necessity of fresh air and ventilation in the sick chamber. It should also be recollected that no artificial system of ventilation and no amount of cubic space will obviate the necessity of natural ventilation, and natural ventilation is only obtained by open doors and windows. In the hot season, it is necessary to close the doors and windows during the day, in order to prevent the entrance of hot air; but so soon as the approach of sunset renders it practicable, doors and windows should be thrown open, and the free admission of air throughout the whole dwelling should be sought. There are doubtless low, damp, malarious localities where a too free perflation by the night air in certain seasons of the year would be undesirable; but, speaking generally, it may be accepted as an axiom that, provided the occupants of bungalows are protected from chill or cold, as would probably be caused by currents or sudden blasts of cold air, free ventilation from without will be more conducive to health than the vitiated atmosphere which must result, when people live and sleep in apartments, to which fresh air is denied access.

The impurities found in air may be divided into suspended and gaseous matter. The universal diffusion of suspended material is proved by the numerous atoms which become visible in a ray of sunlight. These particles are atoms of the local soil; spores, germs, pollen, and decaying debris from the vegetable world; decaying tissue, cells, germs of animalculæ, and of disease from the animal creation, particles of carbon, fibres of hair, cotton, wool, and of other fabrics from various sources. Noxious gaseous matters arise from sewers, from decaying animal and vegetable matter, and from the respiration and skins of animals, and all such gases are charged with inconceivably minute particles of decaying matter, of living germs, either animal, vegetable, or of disease (*vide* p. 602). All such impurities will of course be most abundant in the immediate neighbourhood of their source—such as heaps of decaying matter, animal or vegetable, stagnant water, sewers, certain manufactories, and diseased persons. At present, we are only considering the gaseous and organic emanations from the lungs and skin of persons resident in a house, and particularly of the occupants of a sleeping-room. The matters constantly thrown off by the lungs and skin are carbonic acid, watery vapour, and microscopical atoms of organic matter. When the air of an inhabited room is thus vitiated to the extent of ·7 per 1,000 cubic feet of air, the vitiation becomes distinctly perceptible to the sense of smell. Persons habitually sleeping under such circumstances, wake in the morning heavy and unrefreshed, and suffering from headache. They lose their appetites, become enfeebled, and therefore more liable to various disorders. If the contamination of the air is still greater, some form of fever, probably typhus (*vide* p. 198), will be excited. If the air is excessively charged with the products of respiration, and with emanations from the skin, those breathing it must die, as occurred in the Black Hole of Calcutta, when in 1755, out of 146 prisoners confined, 123 expired in one night. It may be stated as an axiom, that the most ordinarily impure external air is less deleterious than that arising from overcrowding, or want of ventilation in dwellings, and especially in sleeping apartments. For happily the operations of Nature are constantly destroying the impurities referred to above. Injurious gases become diffused, diluted, or decomposed; animal emanations are absorbed in the processes of vegetation; suspended matters are washed down by rain, or fall by their own weight; while many substances are oxidised and thus rendered innocuous. But all these operations require abundance of air. If air is not admitted into a dwelling or room, such operations cannot on. The same atmosphere, charged with deleterious bonic acid gas, and with organic atoms from the skin and gs, is breathed over and over again, with the results to the sons so breathing stated above. The action of nature ely offers us an atmosphere vitiated to the extent of ·7 · 1,000 cubic feet. But as half a degree of temperature kes the difference between fluidity and solidity of water, l as half a grain will turn the balance of a million grains, a very small increase of impurity in the air will cause the ference between health and disease.

CONSERVANCY.—Persons cannot be too particular re-rding the conservancy of their premises. Otherwise, the eeper will simply remove bath-room refuse and deposit in any corner. Here it may become the cause of disease, obably of *typhoid* fever (*vide* p. 193), now not uncommon India, and acknowledged to be intimately associated with fective conservancy. All bath-room refuse should be first sinfected by dry earth (*vide* p. 607) and then taken away d buried. It should also be recollected that Indian cattle d sheep will greedily devour human ordure, especially in e hot season, when their natural food (grass) is scanty. In is manner the ova or germs of certain maladies—tape-orm, for instance, may be conveyed, with flesh used as food, to the human system (*vide* p. 422).

CONDUCT OF THE PASSIONS.—The Natives have a mely proverb, borrowed from the Persians, to the effect that he proper devil of mankind is man,' and it is a fact that e state of health of Europeans in India depends much on e control exerted over the enemy within. Moderation in all atters, whether in eating or drinking, business or pleasure, one golden rule of action; another, equally important, ing the endeavour to avoid those fits of irritability, or en passion, to which the European, fretful from heat of imate, and often annoyed by the dilatory or otherwise jectionable conduct of the Natives, is too apt to give way.

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CHAPTER VI.

ON THE FEEDING AND MANAGEMENT OF INFANTS.

At no period of life is careful management so much called for as during the helpless condition of infancy, and nothing constitutes so frightful a source of infantile sickness and mortality as *improper feeding.* It is natural that an infant should live during the first months of its existence on the milk provided by the mother. At the time of birth the digestive organs of the child are in a comparatively immature state, and it is only gradually that their power becomes developed. For the first few months no saliva is secreted, there are no tears, the stomach and alimentary canal are comparatively short, and that portion of the latter called the *cæcum* is small. The teeth do not appear until the lapse of several months. All conditions pointing to feeble digestive capacity, and evidencing that the food must be specially adapted to the state of the digestive powers. And of such food there is only one kind, namely, milk.

It is in similar accordance with the dictates of nature that a healthy woman should suckle her offspring. It is well ascertained, that the systematic avoidance of this plain duty, often reacts injuriously in various ways, on the system of the mother. But notwithstanding the extreme desirability of healthy females suckling their own children, the fact remains, that there is a large number of Englishwomen living in India who are unable to undertake this duty. In addition to those suffering from actual disease, or weakened by former attacks, there is a still more numerous class who are debilitated, to a greater or less extent, by the combined influence of heat, malaria, and the relaxing nature of the climate. It has been already mentioned (*vide* p. 623) that the above influences lead to general, although often gradual, and sometimes long-deferred, degeneration of the blood. And this is, as a rule, more especially apparent in the weaker system of the female, particularly when child-bearing, parturition, and suckling (conditions always making a great demand on the strength of the woman) are superadded as causes of debility. It may be broadly stated that, as a result of residence in India, the majority of European women are physically unable to nurse their children after the second or third confinement. On the first occasion they may be equal to the task, and should, when possible, nurse. But with every desire to continue to fulfil such duties, they find their strength unequal to the strain on the system. And persistence in nursing after the appearance of the symptoms detailed at p. 670 is followed by gradual or even sometimes sudden cessation of the secretion of milk.

When the mother finds her milk inadequate to supply the wants of the child, and the choice of a wet-nurse, or of bringing up by hand, cannot be longer deferred, the question not unfrequently arises whether the mother's milk cannot be supplemented by hand-feeding. Many mothers are averse to delegating the duty of suckling their infants to other women; in the minds of some people there is an objection, as unreasonable as unconquerable, to their children being suckled by a Native female; others, again, may be unable to bear the expense of a 'dhai,' no inconsiderable item in some parts of India; or, as is not unfrequently the case in certain districts, a suitable wet-nurse is not procurable. Such exceptional circumstances must necessarily sometimes lead to the endeavour to supplement the milk of the mother by hand-feeding. But it is a practice which cannot be recommended.

It is a fact that whenever the milk, especially at the commencement of nursing, is not *sufficient* for the wants of the infant, it is also more or less *deficient* in those qualities on which its nutritive properties depend, and it is, therefore, to a great extent unsuited for use. The limited supply itself shows that the constitution of the mother is unequal to the tax imposed, and milk of the best quality cannot be secreted by a person whose constitutional powers are failing. The sooner, in such cases, these facts are appreciated and acted upon, by the employment of a wet-nurse, the better it will be for both mother and child. But if, on account of the reasons previously mentioned, or from any cause, a wet-nurse cannot be obtained, it will be advisable, on the appearance of the symptoms detailed at p. 670, as marking failure of the constitutional powers during nursing, for the mother to leave off suckling *immediately*, and to trust altogether to hand-feeding. It is alike injurious to mother and child for the former to secrete, and for the latter to imbibe, milk deficient in both quantity and quality. The child should then be fed as mentioned at pp. 666, 668.

The composition of milk and the selection of a wet-nurse or 'dhai' may now be considered.

One hundred parts of milk contain nearly ninety parts of water, the remaining proportion being composed of solid constituents, as *caseine*, or cheesy matter (a substance which differs little from the albumen of the blood), of sugar, fat, and various salts. The milk of women is liable to certain natural changes at different periods of lactation, or suckling. For example, the first milk secreted (called *colostrum*) differs from that afterwards formed in containing slightly purgative principles, the utility of which will be afterwards referred to (*vide* p. 676). Until the end of the first month the amount of sugar is proportionally less than afterwards, and the *caseine* or *nitrogenous* matter is presented in a more easily digestible form than subsequently. From the eighth to the tenth month sugar is in excess. On the other hand, caseine is most deficient during the tenth and eleventh months, and most abundant during the first two months. During the first month there is also more butter, or fat, and salts than at any other period.

From the above it is evident that when selecting a wet-nurse one of the leading requirements should be, that the milk should have commenced about the same date as that of the mother. The general health of the woman should be considered, and the freedom from any skin disease, such as itch or syphilitic affection, must be ascertained. The condition of the breasts should be examined, which should not be soft, flabby, and pendulous, but round, prominent, and affording a rather hard, knotty feeling. The nipples should be well developed and projecting, and these parts should be further examined for excoriation or chaps. A little milk should be procured, which should present a bluish-white colour, and possess a sweet taste. If tested with test paper it should afford an alkaline, not an acid reaction; and if examined under a microscope, oil globules should be seen floating about separate and free, and not massing together. Allowed to stand a few hours, it should give a thin film resembling cream. Dropped in water, healthy human milk should form a light cloudy mixture, and not sink to the bottom of the water in thick drops. Enquiry should be made as to whether the woman has been 'unwell' since nursing, for if so the milk is never so good, and will probably soon stop altogether. The condition of the child should be examined, and the mother of a weak, puny, badly nourished infant should be rejected. Although the age of the wet-nurse's child should as nearly as possible correspond with that of the infant requiring wet-nursing, the age of the wet-nurse herself is not so important a matter. A woman from twenty to thirty years old (neither older nor younger) is advisable; for it must be recollected that Native women commence having children at a very early age, and cease to do so proportionally early; and neither a very young girl, nor a woman approaching the termination of her child-bearing era, is desirable. The woman should be of temperate habits, not addicted to over-eating or to drink, or to smoking deleterious compounds of opium or hemp. In certain parts of India, a moderate indulgence in tobacco smoking must be permitted, as some women—Bheels, for instance—will rarely take service if debarred from the customary pipe. Lastly, the hint may be added, that the association of the woman with her friends and relatives should, if practicable, be altogether stopped.

When in the absence of medical advice a wet-nurse is selected, the possibility of deception being practised should be held in view. A woman by drinking largely previous to examination, and by allowing the milk to accumulate for some hours, may present all the appearances of breasts well supplied with milk, while in reality the daily amount secreted is not sufficient for the nourishment of a healthy child. Such deception may be suspected when a thin, feeble-looking woman appears with overflowing breasts. The only sure method of detection is applying a child to empty the breasts, and watching the rapidity of the reaccumulation of the milk.

When wet-nursing is to be commenced from the birth of the child, it should be recollected that the milk of a healthy woman is too rich for the delicate stomach of the infant during the first two or three days of its existence. It should therefore be fed artificially for the first seventy-two hours, in the manner detailed at p. 666; and on the first three or four applications of the child to the 'dhai,' it should be permitted to take only a small quantity of milk from the breasts. If a wet-nurse confined at the same time as the mother of the child were available, the precautions as above would not be required; but this can rarely be the case. It

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reason a wet-nurse cannot be procured, artificial feeding must of course be adopted. *But this, however carefully conducted, is a most fertile source of infantile disease and mortality.* Human milk being the natural food of an infant, it will in most cases be preferable to somewhat relax the rules for the selection of a wet-nurse, rather than incur the risk of injuring the infant by other varieties of milk. It may be broadly stated, that any ordinarily healthy woman's milk is better for a child, than the milk of any quadruped.

When artificial feeding is indispensable, it is expedient to modify the milk, so as to make it resemble as much as possible that of a woman. The best substitute for many delicate children is asses' milk, as in some respects it more nearly resembles that of woman than any other variety, particularly in the high proportion of sugar and large amount of water it contains, although there is a great deficiency in solid matter. It is for this reason better adapted for the delicate stomachs of persons or children reduced by illness, than for the wants of a vigorous growing child. In India goats' milk is perhaps most desirable, which, although containing more solid constituents and less sugar than human milk, is more like the latter than most samples from the cow. The latter fluid contains more caseine, fat, and salts than either, and less sugar than asses' or woman's milk. Analysis of milk, however, varies considerably, and it is probable that different samples secreted by the same animal would furnish somewhat different results, which must be influenced by feeding and the state of health of the animal. Hence it happens that sometimes goats' and at other times cows' milk agrees best with an infant. As a general rule for India, goats' milk may be said to be the most suitable, and it is often the most conveniently procured. Whatever animal is selected it should be fed and kept specially for the purpose, and the child's food should *never* consist of mixed milk, or of milk taken from two animals, even of the same class.

Supposing a child to be fed on asses' milk from its birth. For the first few days the milk should be given in the proportion of two-thirds milk and one-third water. After the first four or five days the quantity of milk may be gradually increased, until at the end of a fortnight asses' milk may be given pure. Asses' milk being so rich in sugar requires no addition of this kind. If cows' or goats' milk is used, it should be given for the first ten days mixed with one-half the quantity of water. After this period the amount of water may be gradually diminished, until at the end of the fourth month goats' milk may be given pure, and cows' milk almost pure. At the end of the fifth month cows' milk may be given pure. Both goats' and cows' milk, being comparatively deficient in saccharine matter, require the addition of sugar. For this purpose the preparation called 'sugar of milk' (or *lactine*) is preferable. Sugar of milk is not fermentable like other sugars, and is therefore less liable to turn acid on the stomach. If sugar of milk cannot be procured, pure white loaf sugar is best. Moist sugar should never be used, as it is certain to ferment in and disorder the stomach. It weakens the digestion, cloys the appetite, produces acidity, and often acts as an aperient. The quantity of sugar to be added to milk and water for artificial feeding is also a very important matter. Much harm is done by rendering the food too sweet. The desideratum is to form a compound resembling human milk, and the latter, although sweet, is not saturated with sugar. A moderate 'mawkish' sweetness is all that is required. The palate of the mother should be accustomed to the taste of good human milk, and the food prepared accordingly. It is worth recollecting, that a little variation in the sweetness or otherwise of an infant's food, will make all the difference as to the food agreeing with the child or not. The usual fault is that infant's food is prepared too sweet. In addition to the above precautions, if cows' milk is used, it will sometimes be desirable, when the infant vomits, to render it less rich in *caseine*. This is to be effected by exposing the milk to a gentle heat, in a wide open vessel, when a film of caseine forms on the surface, which may be removed with a spoon. Or sometimes, it will be found, that cows' milk suits best, if treated as follows. Let the milk stand for two or three hours in a tall glass, then dip out the upper third, and use the lower two-thirds.

A child should always be fed from a bottle, and not from a cup; for the act of sucking, which a child must make when feeding from the bottle, promotes the flow of saliva, mixes it with the food when the saliva appears, and thus assists digestion.

The above may be accepted as general rules for the feeding of an ordinarily healthy child. But it may often happen that, from accidental causes, such as overloading the stomach of the child, or from some deviation in the quality of the milk, temporary modification in the feeding, *generally in the way of further diluting the milk*, will be advisable.

Of course it is necessary that milk of any kind thus given should be perfectly fresh, and not in the slightest degree soured or turned, either by weather or by dirty vessels. Perfect cleanliness of the latter, and of the feeding spoon or nursery bottle, cannot be too much insisted upon; and to secure such cleanliness nothing is better than the constant use of hot water. Soured milk, or soiled feeding vessels, are often the undetected cause of bowel complaints. The least atom of stale milk sticking to the tube, or cork, or bottle, will turn sour any fresh milk touching it, and cause vomiting and diarrhœa. The crevices of corks are especially liable to hold atoms of decaying milk, and therefore a wooden stop should be used. A ready method of turning the milk sour, is allowing it to be in the bed, warmed by contact with the child's body. More milk than a child requires for the meal should never be put into the bottle. If milk cannot be procured, when required, from an animal on the premises, it is well to test it with litmus paper before using it. If the milk is at all acid, the paper is turned more or less red, according to the amount of acidity present. The milk of stall-fed animals is especially liable to turn sour.

It now remains to say a few words regarding the water used for mixing with infants' food. The importance in India of invariably using filtered water for household purposes has already been dwelt upon (*vide* p. 635). But even further precaution is required where infants are concerned. The water should be first filtered and afterwards boiled. It should then be allowed to cool, and when required for use should be again heated to the proper degree. The temperature of an infant's food should be, as nearly as possible, that of the mother's milk; or, at least, it should not be below 96° Fahr. or above 98°. Barley water sometimes suits better than plain water to mix with the milk, especially when there is tendency to diarrhœa.

Respecting the use of condensed milks as food for infants, recent investigations would appear to show that while infants take readily to such foods, on account, probably, of the sweet taste, and also grow plump and apparently thrive, they are not in reality strong when so fed. A very slight ailment renders them markedly prostrate, to a much greater degree than when fed on fresh animal milk. Similar remarks are applicable to most advertised 'food for infants.' Liebig states that the usual farinaceous foods are the cause of most of the diseases, and of half the deaths, of infants.

The question when a child may be fed with some other food besides milk, may now be considered. When a child is first given other food, it should only be used as an addition to the natural food, milk, and not as the main means of support. Farinaceous foods, as sago, arrowroot, rice, tapioca, gruel, so often selected on account of their supposed lightness, belong to a class of substances which are digested and assimilated with difficulty. In infants the imperfect development and form of the digestive organs, and particularly the smallness and straight shape of the stomach, show that food needing to pass through a long process of preparation within the body, before it becomes fitted to nourish the system, is unsuited to a child. Such food excites eructation and vomiting (the latter so easy in the straight stomach of a child), intestinal irritation, and diarrhœa. And not only are these farinaceous articles of food hard of digestion, but when reduced to their ultimate elements, as they must be in that process, they differ much from milk, the only natural food, and are thus rendered the most unsuited for the nourishment of the body. Food has two uses, one to afford matter for the growth of the body, the other to give material for the maintenance of the animal heat. Life cannot be long supported except on a diet in which the elements of nutrition and the elements of respiration (or animal heat) bear a certain proportion. In milk these are combined in the proportion of one to two. In arrowroot, sago, and tapioca, the proportion is one to twenty-six, in wheat-flour one to seven. Thus the child fed altogether on farinaceous food is actually starved to death, for it is forced to supply from its own tissues the nitrogenous elements essential to the maintenance of life. This is a frequent cause of that wasting and emaciation (called *atrophy*) from which so many children suffer—a condition accompanied by, or resulting in, diarrhœa or dysentery, and not unfrequently followed by convulsions, or by the state known as *spurious hydrocephalus* (*vide* pp. 61, 81).

From the above it is evident, that a child should not be fed on other food than milk, until some indication appears of the development of the digestive organs. The first sign of such changes is the process of teething. As a general rule, until the first teeth appear, or about the sixth or seventh month, no other food than milk should be allowed. After this period some kind of farinaceous food may be given cautiously, in small quantities, and at first only once in the day. This may be either 'tops and bottoms,' or corn flour, or rusks, Robb's biscuits, or sago, arrowroot, prepared barley or soojee—sometimes one, sometimes another of the foods named agreeing best with the child. It will also be advisable to add not only the necessary quantity of sugar, but also a grain or two of salt to each meal. Animal food should not be given until two of the grinders or back teeth have appeared. To feed a child with animal food before teeth proper for its mastication are cut, shows a disregard to the indications of nature, almost certainly followed by disordered bowels, diarrhœa, or other disagreeable results. For the first animal food, nothing is better than beef-tea in which sago has been boiled. Gradually the child may be accustomed to take chicken or mutton broth, fine mince, and eggs, and rice, and dhall. Potatoes should be avoided for some time, as, unless very soft and mealy, lumps may be swallowed, which will certainly irritate the bowels.

Lastly, over-feeding must be guarded against. If the child's stomach is overloaded, it will certainly produce flatus, hiccup, indigestion, vomiting diarrhœa, or other disorders (*vide* p. 362). An infant under one month old will consume about two and a half pounds avoir. *per diem*, or from two to five ounces at each meal.

Before leaving the subjects of suckling and feeding infants, it will be desirable to mention the symptoms which indicate that the mother or nurse is becoming exhausted by the drain on the system, caused by the secretion of the milk. The first signs of this approaching malady are a dragging sensation in the back when the child is at the breast, and an exhausted feeling, often described as a 'sinking at the pit of the stomach,' afterwards. This is followed by loss of appetite, constipation, or diarrhœa, sleeplessness, and pain in the left side, with scanty monthly discharges. There is often pain in the head, or brow ague, or throbbing of the temples, with giddiness and depression of spirits, and perhaps

pitation of the heart. A short dry cough is also not un-
ıuently experienced, and the monthly discharge may
ppear, or may be irregular or excessive, with constant
corrhœa or 'whites.' In extreme cases, the countenance
ws pale and sallow, the body wastes, and there may be
ht perspirations and swelling of the ankles. When such
nptoms appear, it is useless attempting to support the
ength by more generous diet, by ale, porter, or stimulants,
is often tried. The woman should cease suckling, other-
e nature will take the case in her own hands, and the
retion of milk will stop—not, however, until the constitu-
n is probably permanently, or at least seriously, impaired by
persistent drain which, in spite of the warnings afforded,
been maintained; an impairment for which many females
ve been ultimately obliged to seek change of climate.

With regard to the *weaning* of children, no general rule
n be laid down. The propriety or otherwise of weaning a
ild in India, must be considered with reference both to the
ndition of the child, and of the mother or nurse. Speaking
nerally, weaning should not be commenced until after the
ild has attained the age of twelve months, and then only
ovided the child is strong and healthy. If the child is
eble, and not in good health, suckling should be continued
nger, or until the child has cut at least twelve teeth.
hen weaning is determined on, it should be a gradual process,
d should be begun at night, and not when a tooth is irri-
ting. The better way is to separate the child, and if it
ies, it may be soothed with some cold water or the bottle.
will probably, however, get very little sleep; but by the
cond night, if the mother has not yielded, half the work
ill have been done. The third night the child will pro-
bly sleep the whole time, or it will be satisfied with a drink
two of water. If the attempt at weaning is made by day,
e fatigue of the mother will be likely to render her so
eepy at night that she will probably yield, and thus time

and trouble will be uselessly expended. Too mixed diet should not be given after weaning, various articles being each tried singly in succession for a few days, in order to ascertain which is most suitable for digestion. Milk and water thickened with baked flour or with well-baked bread suits most infants.

The dispersion of the mother's milk may be much assisted by saline aperients (Recipes 2, 4, 6), by rubbing the breasts gently with soap liniment, or, if procurable, with belladonna liniment; and by abstinence from much fluid or drinks. Drawing the breasts with a pump, or otherwise, is not recommended, and it favours the continued secretion of milk.

As confinements not unfrequently take place in India when neither medical attendant nor nurse is present, the following observations on the course to be adopted in such emergences as regards the child are now added.* As soon as the child is born, the first care should be to allow free egress of air to the child's mouth. Any froth or fluid hanging about the child's mouth should be wiped away, and the head placed in such a position that it may not be covered with bed-clothing or other substance. Then, provided the child cries (which it probably will do), the cord should be tied and cut, about three inches above the navel. This little operation is best effected as follows. Two ligatures should be tied rather tightly round the cord, one at the distance of two and a half inches above the child's navel, the other rather more than three inches above the navel. Then the cord should be divided, *between the two ligatures*, with a rather blunt pair of scissors. The ligatures or strings used should be previously prepared, and should consist of eight or ten threads each, loosely rolled into one string. For this purpose any common sewing *thread* will do very well, but sewing *cotton* would not be strong enough; and tape, being more likely to slip, is not recommended.

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* For the treatment of the mother, refer to article LABOUR, p. 557.

If the child is born apparently dead, and does not cry, it may present either of the following appearances: 1stly. The face may appear flushed and livid, the skin red, and the cord tense and pulsating. In this condition the first thing to be done is to tie one ligature as soon as possible round the cord upwards of three inches from the navel. Then place the second ligature round the cord an inch or so below, but do not draw the knot tight. Now divide the cord between the ligature tied tight above and the ligature laid loosely below. The latter is not to be tied tightly until a tea-spoonful or more of blood has escaped. This loss of blood will often be followed by efforts at breathing, which will soon become established, the child beginning to cry. If respiration does not take place, the child's body should be sprinkled with cold water, the limbs should be gently rubbed, and artificial respiration should be tried. (For artificial respiration, *vide* DROWNING, p. 476). 2ndly. The face may be pale, the features collapsed, the lips blue, the jaw fallen, the limbs cold, while no pulsation is felt in the cord. In this condition, before the cord is tied and divided, cold water should be sprinkled on the breast; the back of the mouth should be cleared, by the finger covered with a handkerchief, from any sticky mucus or fluid; the face and buttocks may be tapped with the corner of a wet cloth; the nose and back of the mouth may be tickled with a feather; and if none of these means excite breathing, artificial respiration should be tried. While all this is going on care must be taken that the body of the child is so placed that there shall be no impediment to the passage or circulation of blood through the cord. While artificial respiration is being tried, a hot bath should be prepared (temperature 97° Fahr.), in which, after the cord is cut and tied, the child may be immersed, and artificial respiration may be again tried while the child is in the bath. Infants, to all appearance dead, have often been recovered, even after upwards of two hours spent in such endeavours.

As soon as the infant is free from the mother, or, in other words, when after the division of the navel-string it commences an independent existence, it should be enveloped in a thin flannel wrapper, and (if in the cold weather and the northern parts of India) taken towards the fire. In a few minutes, or as soon as a warm bath can be conveniently prepared, the body of the infant should be immersed in warm water, of the temperature of 97° Fahr., and the greasy substance adhering to every new-born infant should be washed off. This greasy substance will be found more especially adhering to the armpits, groins, eyebrows, or other places where the skin is loose. Glycerine or Castile soap and a very soft sponge will ordinarily suffice for this purpose, but care must be taken that the soap does not get into the eyes, which may excite ophthalmia. In some parts of Europe fresh butter and lard are used, in order to dissolve this deposit on the body of a newly-born infant. But any such application is unnecessary. The deposit which is not washed off at first will separate at future washings, and its adhering for a few days will do no harm. The infant should not be permitted to remain in the bath more than three or four minutes, whether the surface of the body is free or not from the greasy substance referred to. It should be recollected when washing the infant, that its bones are soft, and unable to sustain the weight of the body. It should, therefore, during the washing process, be allowed to rest on the bath, and not be held up by one arm, as is sometimes the case. After the washing it should be put on a soft pillow on the nurse's knees, and be gently dried with soft warm towels, and then enveloped in a thin flannel wrapper. Some medical men advise powdering the body of the child after washing, but as the only benefit from the use of the violet powder is to secure perfect dryness of the skin, this procedure, provided due care be taken, may be dispensed with. During the whole period of infancy cleanliness and dryness are of great importance. The urine of the infant is very frequently passed, and the bowels are often moved, and if the discharges are permitted to remain, they irritate and inflame the skin. Napkins, which should never be of waterproof material, should be changed whenever soiled, and they should be fastened with a safety pin.

Having properly washed and dried the new-born infant, the navel-string now demands attention. If not already done, the string or ligature with which the navel-cord is tied should be cut short off near the knot. Then a piece of old soft linen rag should be doubled, and cut in a circular shape, four or five inches in diameter. In the centre of this a circular hole should be made, through which the tied cord is to be drawn. The latter should be then folded in the cloth, and the mass laid on the belly of the child, in which position it should be secured by a belly-band. The latter should be of thin flannel, about five inches broad, and long enough to go twice round the body. But it should not be applied too tightly, as it would then interfere with the breathing of the infant. After the bandage is applied, two or three fingers should pass easily beneath it; the object being, not to impede breathing or digestion, but simply to maintain a slight pressure over the navel, which at this period is one of the weakest parts of the infant's body. In order to provide against weakness, or possible protrusion, or rupture of the navel (*vide* p. 534), sometimes happening to infants, the bandage should be used for three or four months after birth, and even then not be left off, should there be any prominence or protrusion of the part. The rag, as mentioned above, should be removed, and new rag applied daily. It will be advisable to smear a little salad oil over the cloth, in order to prevent any sticking of the end of the navel-string to the cloth, which might lead to injury or forcible removal of the string.

In four or five days, or a week, the end of the navel-string will come off with the rag, leaving a depressed sore below, which ordinarily quickly heals. But if the string does not separate in this time, it should not be pulled or otherwise interfered with, but allowed to drop off by the natural process of separation.

With regard to the clothing of infants, the desiderata are that it should be light, warm, and loose. Thin flannel fulfils these requirements better than any other texture. Sleeves and armholes should be so made, that twisting the child's arms into unnatural positions may not be necessitated. Infants are frequently caused pain, if not more seriously injured, by their tender arms being thrust through narrow apertures of clothing, and from their skin being fretted by rough and tight garments, or by the incautious use of pins.

As soon as an infant is dressed and the navel-string properly adjusted, many nurses are in the habit of dosing it with castor oil, with salad oil, with butter and sugar, with treacle, or some other substance calculated to act on the infant's bowels. But this is very seldom necessary, and may be injurious. The infant should be allowed to sleep for a time (which it most usually will do), the eyes being protected from any strong light, and the body from draughts or cold. In five or six hours the infant will probably awake crying, and may be put to the breast, which will encourage the flow of milk. The milk first secreted, as before mentioned, contains some natural aperient qualities, and it is right the child should take this milk instead of the dosing above referred to. It is only in cases where the first milk of the parent is not obtained, owing to the child being put to a wet-nurse, or in cases of premature birth, when no milk is secreted, or from the first milk failing to be sufficiently purgative, that the administration of any medicine is desirable. Then half a tea-spoonful of castor oil is the best aperient. The lower bowels of a new-born infant are loaded with a dark, black secretion called *meconium*, which, unless removed (by the natural purgative properties of the first milk, or otherwise by medicine), may give rise to irritation, pain, and diarrhœa. But in the great majority of instances the first milk is quite sufficient to effect this.

Neither is the practice of feeding an infant immediately after birth to be approved. Nor should it be put very frequently to the breast (*vide* p. 564). An infant requires little, if any, nourishment until ten or twelve hours after birth. There is in most cases, even before this early period, a sufficient secretion from the mother's breasts to serve the scanty wants of the child. Though small in quantity and poor in quality, such secretion is, combined with the material already in the child's bowels at birth, enough for nutrition. In second confinements the mother will frequently supply milk within twelve hours. If not, or in first confinements, when the milk is later in coming, the infant should be fed every three hours, either with asses' milk and water, or with goats' or cows' milk and water, proportioned and sweetened according to the directions given on this subject (*vide* p. 666). After the mother's milk appears, the infant should obtain nourishment from this source alone. During the first ten days it will be advisable to suckle the infant when it awakes; for the next twenty days every two hours by day, and every three hours by night; rather than overloading the child's stomach at long intervals. Frequent suckling during the first month is also better for the mother's breasts, as it maintains them constantly relieved from secreted milk; the distension of the breast from retained milk being a fertile source of inflammation and abscess of the part. After the first month the intervals between suckling should be gradually extended to four hours. By care the habit of not suckling from 10 P.M. to 5 A.M. may also be acquired, to the great comfort of the mother. It is well to recollect that an infant should be applied alternately to each breast. Sometimes a child, from some inexplicable reason, prefers one breast, and the mother, to avoid a little contention, concedes the point; or, in consequence of a cracked or sore nipple, the mother puts the child more to one breast than the other, the result being distension by retained milk, and often abscess.

After the birth of a healthy infant various circumstances may give rise to uneasiness. *First*, from pressure during birth the shape of the head may be altered, the appearance of the face may be disfigured, or black or bluish coloured swellings may be raised on the scalp. These appearances, however, need not excite apprehension. The head or face will gradually assume their natural shape, and swellings about the scalp seldom require more than bathing daily with a little milk and water. *Secondly*, it sometimes happens that the infant makes no water during the first twenty-four hours. When this is the case, and the infant appears in pain, crying, and drawing up the legs, a warm bath, or fomentation over the lower parts of the bowels, will prove successful. *Thirdly*, in some infants a day or two after birth the breasts are found swollen, and a whitish fluid resembling milk may be observed on the surface of the infant's nipple. The swollen part should not be squeezed, as some nurses are in the habit of doing, which may probably cause a 'gathering,' but it should be frequently washed clean, after which a little salad oil, or, if much inflamed and reddened, a bread poultice, are the best applications. *Fourthly*, infants sometimes suffer a few days after birth from an affection of the eyes. The eyelids stick together after sleep, the edges are red, the eyes are closed when exposed to light, the lids swell, and matter is discharged. This affection is often caused by uncleanliness, or by the infant, from lying in bed with the mother, getting perspiration, or sour milk into its eyes, or by exposure of the infant to too strong a light, as from a blazing fire, which should be guarded against. The best method of treating this condition is by perfect cleanliness, by frequently bathing the eyes with milk and water, by smearing the lids with salad oil to prevent them sticking together during sleep, and by keeping the child in a darkened room. *Fifthly*, bleeding from the navel-string is another accident to which new-born infants are liable. This may arise from the string used being carelessly tied, or from tapes being used, which are liable to slip. The proper treatment of this variety of bleeding is placing another ligature below the first. Or the bleeding may come on, when, after seven or eight days, the navel-string separates. To stop this bleeding, pressure should be applied by placing the finger on the part for a few minutes. If this does not succeed, a solution of alum (20 grains to an ounce of water) may be applied with a camel-hair brush, or the tincture of iron in similar manner; none of which means stopping the flow, the part may be touched lightly with nitrate of silver. *Sixthly*, in some cases, either after bleeding, or when the end of the cord drops off without bleeding, the navel remains red, moist, or ulcerated, presenting granulations or 'proud flesh.' This condition is also generally easily cured by the use of alum wash or nitrate of silver, and by the application of simple dressing under the bandage. *Seventhly*, some infants vomit *immediately* after sucking, the milk returning *unsoured*, or without evident cause. This probably depends on a copious supply of milk, which the infant takes too fast. A finger should be placed on the orifice of the nipple, to prevent too rapid flow. *Eighthly*, some infants are born 'tongue-tied,' although such condition is not really so frequent as is popularly supposed. If the infant sucks and protrudes the tongue at all over the lower lip, it is not *tongue-tied*. even although for some days it may not suck so vigorously as it should do. The state known as 'tongue-tied' depends on the fold of membrane (or *frænum*) beneath the tongue being a little too far forward, and the method of relief is the division of this structure to the extent of a quarter of an inch or less with a sharp pair of scissors. The snip with the scissors should be directed downwards towards the jaw, not upwards to the tongue, to avoid cutting a small blood-vessel passing through the part, and from which, when cut, a troublesome bleeding has proceeded. *Ninthly*, 'yellow gum' is the term popularly given to the *jaundice* which not unfrequently occurs to infants two or three days after birth. The child's skin is of a yellow colour, the urine is very dark, staining the clothes yellow, and the stools are white. It is not a serious disorder, and is probably due to the liver being engorged, from the lungs not acting properly at first. As a general rule no medicine is required, the first milk secreted by the mother being sufficient to open the bowels of the infant. In bad cases, and when the bowels are constipated, half a tea-spoonful of castor oil may be given. It is often some days before the skin loses the yellow tinge. *Tenthly*, *Cold in the head*, or *Catarrh*, is very common, some infants sneezing immediately they are born. To avoid cold in the head, infants should be kept out of draughts and chills. Other maladies occurring to very young infants are *nine day fits* (*vide* p. 121), *thrush* or *white mouth* (*vide* p. 391), *pompholix* or *blebs* (*vide* p. 344), *constipation* (*vide* p. 116).

It may be useful here to mention that the cry of an infant is often very characteristic, or even distinctive, of the malady from which the child is suffering; and as infants cannot express their pains and ailments, an ear educated to distinguish between the different cadences of the child's voice should be an aim of every mother. Neither is the matter very difficult, after a little attention to the sounds. For examples: the infant's cry of passion is a furious one; the cry of sleepiness is a drowsy one; when roused from sleep there is generally a sobbing cry; a shrill cry denotes hunger, and is often accompanied by movements of head and hands, as if seeking the breast; the cry of teething is fretful and intermittent; an infant with earache will cry in short, piercing tones, putting the hand to the affected ear, and perhaps rolling the head; bowel complaint causes a straining cry, with drawing up of the legs; in bronchitis the cry is gruff and husky; in inflammation of the lungs it more resembles a moan; in croup the voice is hoarse, and the breathing sounds as if drawn through muslin; in inflammation of the brain the cry is often a piercing shriek, alternating with moaning. It should not be forgotten that crying may arise from a pin pricking, or a tight string, or a rough fold of clothing.

When necessary to examine a child, as to the existence of tenderness in the bowels for instance, it is useful to bring the child suddenly before a bright light, as one of the apparently greatest pleasures of an infant consists in gazing at such an object. It almost always ceases to scream, and continues quiet while thus attracted. Seizing such an opportunity, the bowels may be examined by gentle pressure with the fingers. If the pressure causes the child to cry out, with at the same time frowns or contractions of the countenance, there will probably be some irritation or inflammatory condition affecting the bowels.

A child should never be roused from sleep in order to give medicine. It may be safely asserted that sleep will always be more beneficial to a child than any kind of medicine. If a child, especially an infant, sleeps, it may be accepted as an indication of a mild form of disease or of a diminution of serious symptoms. It is often useful in fixing the period of the commencement of an illness to enquire when the child first began to suffer from sleeplessness. With regard to the administration of medicine to children, if they are old enough, appeal to their reason, for if children are deceived they will soon become suspicious, and future trouble will be entailed. If too young to be reasoned with, and

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CHAPTER VII.

THE MANAGEMENT OF THE SICK ROOM.

Temperature of the Sick Room.—In a temperate climate, unless in some particular forms of disease, the temperature of the sick room should range between 65° and 70° Fahr. But in India it will frequently be much higher, and the use of punkahs, or even of tatties, although often undesirable, cannot always be dispensed with. Whatever the temperature of the sick room may be, every care should be given to maintain the temperature *equable*; and this is especially necessary when dealing with affections of the lungs or respiratory passages. During the spring and autumnal seasons in the more northerly parts of India, there is a very great difference of temperature between the night and day, this change being particularly apparent in the early morning; and it is at this period that extraordinary care must be taken to prevent a patient being chilled. Shutting doors and windows, lighting a fire or a lamp, the use of additional wrappings, are the means which will commend themselves to all as the protection against 'chill.' In Chap. V., p. 634, cold or chill is mentioned as a fertile source of disease in India, and the liability to take cold, and the frequency with which it may be taken in a hot climate, are insisted upon. As such is the case with persons in health, the sick must be doubly susceptible to changes of temperature, and therefore require extraordinary care.

Ventilation of the Sick Room.—In twenty-four hours the breathing of an ordinary-sized person vitiates about 1,800 cubic feet of air to the extent of one part in one thousand of carbonic acid gas, and when air is vitiated to a greater degree it becomes injurious (*vide* p. 656). But when persons are sick, and especially when the sickness is a contagious disorder (as small-pox, scarlet fever, measles, diphtheria, typhus fever, erysipelas, &c.), minute particles emanate from the lungs and skin, which further tend to poison the atmosphere, and which, floating about, may be easily carried to other localities, or be breathed into the lungs of other people, and thus set up fresh centres of disease. The more concentrated these particles or germs are, the greater is the injurious influence exerted. Hence the very great importance of the ventilation of the sick chamber, the inmates, both sick and attendants, demanding a much larger supply of fresh air than when healthy, or than when not ministering to the wants of illness. If a healthy person requires nearly 2,000 cubic feet of breathing space, the sick person should have much more than that amount, and the air should be changed much more frequently. Therefore, in the first place, when there is any choice, the sick chamber should be as *capacious as possible*, for the more air there is to breathe the less frequently will it require to be renewed. In ordinary Indian bungalows ventilation (by which is meant the entrance of fresh air into the apartment and the exit of foul air from the room) is only to be obtained through the doors and windows, and in many parts of the country at some seasons of the year the hot winds forbid opening doors and windows during the day. Much, however, may be done by the arrangement of doors and windows in different parts of the house, so that fresh air from *outside* the house may enter the chamber; and for this result nearly all houses would require different arrangements. The mornings and evenings will afford opportunity for more thoroughly ventilating the sick room, and if practicable the sick person should leave the room during the time it is thoroughly exposed to the open air. If this is not possible, with a little care, ventilation may be effected without exposing the patient to any draught, or to any injurious change of temperature; the use of extra wrappings and of screens being the means which will occur to all. A fire-place on one side, and a window slightly open at the top on the other, is a very good means of ventilation. But even this simple method is not always available in an Indian bungalow, and it may be said other methods of artificial ventilation are never available. Therefore the emanations from the patient's lungs and body, and the otherwise vitiated air of the sick room, must ordinarily be got rid of through the doors and windows. Whenever possible, one on each side the room should be open, or partially open, and those windows or doors should be used which, with reference to the prevailing breeze, must admit of fresh air *from outside* entering the sick room, and of vitiated air from the latter passing into the external atmosphere, and *not* into other parts of the house. Of course, when opposite windows or doors are thus made to serve the purpose of ventilators, the sick person should not be placed in the current of air or draught thus created, from which he may perhaps require to be protected by a screen. The purity of a sick room may be judged of by noticing whether there is any perceptible odour on entering the room from the open air, which indicates that ventilation is imperfect. A still better test is placing a wide-mouthed bottle in the room for some hours, and then pouring a little clear lime-water (*vide* p. 581) into it, and shaking it. If the air is impure, the carbonic acid will cause the fluid to become more or less milky in appearance.

Appearance of the Sick Room.—The colour of the sick chamber is often of importance, especially in cases when the brain is in any way implicated. The whitewashed walls of an Indian bungalow are often anything but conducive to the repose and quiet demanded by a patient. The best colour for the sick room is a uniform neutral tint, such as light

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concealing dirt and the attendant damp, less desirable than simply sweeping. If, as sometimes happens, a patient with a contagious disorder must be treated on an earthen floor, it will be advisable to slightly scrape the floor every day.

The smaller the amount of furniture in the sick room, the more air there will be for the patient to breathe, and therefore massive articles of furniture not required for use had better be removed. Cushions and covers should also be as much as possible dispensed with. As regards beds, those having iron frames are the best for use, as being less liable to harbour either the germs of disease or insects.

Lastly, the appearance of the sick room should be made as bright and cheerful as possible, by the use of flowers, pictures, books, or other things pleasant to the patient. Such things should not, however, be intruded or pressed on his attention, and if they create disgust, or excitement, or feverishness, they should be quietly removed.

Cleanliness of the Sick Room.—This can never be thorough when carpets are nailed down, so that they cannot be removed to be shaken and aired. In all febrile diseases the bed linen *under* the patient should be changed at least once a day. The upper sheet, if not soiled, may be used next day after airing as the under one. The pillow-cases should also be changed daily. Patients suffering from small-pox, scarlet fever, erysipelas, typhoid fever, or other contagious diseases, should also have the whole of their bedding changed every day (*vide* p. 690).

But cleanliness of the room and bed linen alone is not all that is necessary. Closets or cupboards attached to the room should not be made the repository of unnecessary articles, and, above all, it should be recollected that used clothing or bed linen should never be put in such places. Such articles should be removed immediately, and disinfected as advised at p. 606.

Disposal of the Dejections from the Sick Room.—Unless required for inspection, the dejections should be received in a utensil charged with some disinfecting agent, and buried (*vide* p. 607). When the dejections are to be preserved for inspection, they should be put away in some outhouse, and not be placed in a room or bath-room adjoining the sick chamber.

Great care should be taken that urine does not come into contact with the chunam floor of the bath-room usually found in Indian bungalows. The absorption of fluid and moisture by a broken chunam floor has been referred to, as conducing to impurity of the air (*vide* p. 686). But there is an additional reason to mere cleanliness, why urine should not be permitted to come in contact with chunam. If this occurs chemical action takes place, and smelling ammoniacal odours are emitted. This will happen even when the chunam floor is not broken up, but much more quickly and powerfully when holes on the surface exist, through which the urine may rapidly soak to the lime below the polished surface.

Deodorisation and Disinfection of the Sick Room.—Substances properly called deodorants chiefly act by overpowering one odour by the substitution of another. Agents properly termed disinfectants are supposed to destroy noxious emanations; but there are some agents, as chlorine gas and carbolic acid, which act in both ways, and which may be used as detailed at pp. 604, 605.

Dietetics of the Sick Room.—Although we now know better than to starve persons simply because they are sick, yet the sick cannot take the same food as the healthy. Thus, when a person has fever and a furred tongue (the majority of diseases being thus accompanied), the appetite for solid food is gone, and therefore all nourishment must be given in a liquid form. Milk is an article of diet which all may take, as far as disease is concerned, in almost any and every condition. Cows' milk is probably best suited for invalids. (For he composition of milk, *vide* p. 665.) If good fresh milk annot be obtained, preserved milk sold in tins may be used. 'old milk is sometimes more agreeable than warm. It may equire the addition of lime-water when there is marked cidity of the stomach present. A little infusion of gentian lso is sometimes useful in stimulating the stomach; and it nay be necessary to give the milk in small quantities, repeated ften, and in this way, when ice-cold, it may be administered o irritable stomachs with the best effect. Contrary to the eaching of our fathers, we now believe that cold water, and ometimes even ice-cold water, is a most beneficial drink, rhich patients may take as often as they wish, providing too nuch be not taken at any one time. Tea also is a wholesome everage, is often comforting to sick people, and may be given rithout harm if sufficiently diluted with milk. When made nly just strong enough to give a flavour, and well supplied rith milk, and perhaps a little sugar, it gives the patient a rifle of nourishment in a very palatable form. For other oods the ADDENDUM (p. 694), containing dietetic preparations or the invalid, is referred to.

When the appetite returns, and a desire for solid food is elt, much care should be taken for some days. A little fish r mutton, with bread and dry toast, will generally be the est diet. Vegetables are not recommended. Jelly, blanc-nange, light puddings made of tapioca, sago, or rice, may be iven, and an egg for breakfast, or in the evening. As a ule no stimulants need be given until the stage of conalescence, when two or three glasses of sherry, or good claret, nay be taken daily. In some instances, when disease assumes grave form, with tendency to sinking, stimulants must be dministered freely; but no general rules can be laid down o suit individual cases. When food is given to either the ick or convalescent, only a little should be brought at a time, nd that in a tempting form, and the patient should not be oo much pressed to take food, especially when it is apparent

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Nursing of Helpless
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move freely. Then, the patient being carried feet foremost over the foot of the old bed, so as to clear it, he should be carried head foremost over the foot of the new bed, the attendants walking along the sides of the bed, and lowering the patient steadily into the proper place.

If there are only three attendants, and the person to be moved has an injured limb, two should stand on each side of the patient, and the third on the side of the injured limb. Then, all acting together, while the latter prepares to raise the injured part, the other two should each pass one hand under the back of the patient at the lower part of the shoulder blades, and the other hand under the thighs, close to the buttocks. The hands being locked, the patient should be steadily raised at the same time that the third attendant raises the limb.

In severe cases of any kind, when it is of importance that the patient should not be disturbed in his posture, moving him may be safely performed by improvising a *stretcher.* All that is required is a strong sheet or blanket as long as the patient, and two wooden rods (as, *e.g.*, rake-handles) of the same length as the sheet, and an inch or more in diameter. To move a person easily, four assistants are required, who are to stand two on each side of the sheet, and *exactly* opposite to each other. One of the wooden poles is to be placed close to the edge of the sheet, which is to be rolled very tightly over it, up to perhaps within five or six inches of the body, the great thing being to draw the sheet smoothly out from the patient while rolling up the stick inside it. The opposite rod is to be adjusted in the same manner. When everything is ready, the assistants grasp the rods firmly with their hands placed about two feet apart, and as nearly as possible directly opposite to each other, so that as they lift, and at the same time draw against each other, the sheet will be supported at exactly opposite points. The assistants are to first drag strongly against each other and then lift, and keep constantly pulling against each other as they move along. If the patient thus moved has a fracture, someone should also take charge of the limb and keep it steady.

Changing the Sheets of Helpless Patients.—Roll up, lengthways, half of the dirty sheet, and push the roll as far under the side of the patient as possible. Then roll up one half of the clean sheet, and spread the other half over the side of the bed, from which the dirty sheet has been removed, and, tucking it under the mattress, place the roll alongside the roll of the dirty sheet. Then gently raise the patient at the opposite side, and turn him over the rolls of sheets. Then take away the dirty sheet and unfold the clean one.

In some cases, when the patient can be raised, it may be desirable, or more convenient, to roll the sheets from the head towards the foot of the bed. The patient should be first raised into a sitting posture, the dirty sheet should be rolled, and the clean one spread down to the buttocks. Then the patient should lie down, and the legs and buttocks being raised, the dirty sheet may be drawn away, and the clean one brought down.

Position of Helpless Patients in Bed.—Every sick bed should be provided with a rope, and transverse handle hanging above it, by which the patient will often be able to slightly raise himself, and so materially assist his nurses. Or a substitute for the rope and handle is a long towel fastened to the foot of the bed. When pillows are used to raise a patient in bed, they should not be piled one on top of the other under the patient's head, as this has only the effect of raising the head and pressing the chin forward on the chest, a position which is very irksome to the patient, and which obstructs the breathing. The pillows should be placed under the patient's back as well as his head. A sloping elevation should be made, commencing at the small of the back, and rising gradually to where a pillow is placed for the head to rest upon. When the upper part of the ody is raised, there is a great tendency for the patient to lip down towards the foot of the bed. A foot-board with a illow for the feet to rest against will prevent this, but ften the patient cannot bear his feet against the board. nder such circumstances a pad, or an air or water cushion, ither horse-shoe shaped or circular, with a hole in the centre, ay be put under the buttocks of the patient, and tied by wo tapes to the head or sides of the bed, and thus a fixed bstruction will be opposed to the buttocks slipping down.

Feeding Helpless Patients.—When it is necessary to ive food or drink or medicine to a patient, the head, and, if ossible, the upper part of the body, should be raised. For luids, a feeding cup may be employed. Where this is not rovided, a spoon, a glass, or a mug may be used. When he latter are used the precaution should be taken of only alf filling them. If a vessel of this kind is too full, the luid is sure to be spilt.

The Bed-Pan for Helpless Patients.—The bed-pan is an rticle of constant use in hospitals. It should be used with he greatest care, and with as little disturbance as possible o the patient, especially when injury necessitates its use. here are two kinds of bed-pans in use—the circular and the lipper. When the circular bed-pan is used, the patient ill have to be lifted by two or three attendants, in the ame way as already described (*vide* p. 691), and the pan lipped in under him. With the slipper bed-pan, the atient should be raised at one side, and the thin end introuced under the buttocks.

ADDENDUM.

DIETETIC PREPARATIONS FOR THE INVALID.

PANADA.—Take the white part of the breast and wings of a boiled or roasted chicken, and pound in a mortar with an equal quantity of stale bread. Add the water in which the chicken has been boiled, or beef tea, until the whole forms a fluid paste; then boil for ten minutes, stirring all the time.

The under side of cold sirloin of roasted beef, or cold roasted leg of mutton, may be used instead of chicken.

BEEF TEA.—Mince finely one pound of lean beef, place it in a preserve jar, and pour upon it one pint of cold water. Stir, and allow it to stand for about one hour. Then place the jar with its contents in a saucepan of water, let it simmer gently over the fire for an hour, and strain. The liquid which runs through the strainer contains a quantity of fine sediment, which is to be drunk with the liquid, after flavouring with salt at pleasure.

Beef tea prepared as above is very nutritive, and possesses an agreeable meaty flavour. Beef tea should not be subjected to prolonged or violent boiling, as it then becomes a soup or broth, from the most nutritious portion (the gelatine and albuminous material) being, during the boiling process, incorporated with the solid rejected residue. The liquid thus loses in flavour and nutritive power.

SAVOURY BEEF TEA.—Mince finely three pounds of lean beef, and add one onion, half a dozen cloves, one small carrot, a little celery seed or essence, a little thyme and parsley, half a teacupful of mushroom ketchup, three pints of water, and salt and pepper according to taste. Prepare as directed for beef tea.

Beef Extract.—Cut up a pound of the best beef into small pieces, and put them into a good-sized pickle-bottle with a wide mouth. This is corked loosely, and placed in a kettle of water and kept boiling for two hours. If the bottle be now removed, it will be found to contain a considerable quantity of fluid, which may be poured off, the beef also being subjected to slight pressure to make it yield more. In this fluid we have a highly concentrated article of nourishment, which may be given, after seasoning, either pure or diluted, according to the state of the stomach.

Chicken, Veal, or Mutton Tea may be prepared in the same manner as beef tea.

Chicken Jelly.—Cut up a chicken, and put the pieces into a jar; pour over it a tea-cupful of cold water, tie down closely with a piece of bladder, and boil the jar in a saucepan of water for six or eight hours. Strain the liquid, and when cold remove the fat. A nourishing jelly remains.

Broths are made by boiling the articles as above for two hours, and straining through a wide sieve. Pearl barley, rice, vermicelli, or semolina may be added. The bones of the meat may also be broken up, and used in the preparation of broth.

Flour and Milk.—Fill a small basin with flour, tie a cloth over the mouth, and boil it slowly in a saucepan of water for eight or ten hours. The inside portion of the flour becomes incorporated into a hard mass. After removing the outer sodden part, add one grated table-spoonful of the flour to a pint of milk, and boil. This preparation is often advisable in dysentery and diarrhœa.

Milk and Suet.—Boil one ounce of finely chopped suet with a quarter of a pint of water for ten minutes, and press through flannel. Add a drachm of bruised cinnamon, one ounce of sugar, and three-quarters of a pint of milk. Boil again for ten minutes and strain. A wine-glassful or more may be taken at a time. It is nutritive and fattening, and if there is no diarrhœa is useful in the atrophy or emaciation of children.

Bread Jelly or 'Pap.'—Steep stale bread in boiling water, and pass through a fine sieve while hot. This may be flavoured with sugar, or mixed with milk. It is suitable for children, and invalids with weak stomachs.

Oatmeal Porridge.—Mix a large table-spoonful of oatmeal with two table-spoonfuls of cold water. Stir well, and pour into a pint of boiling water in a saucepan. Boil and stir well for ten minutes, and flavour with salt or sugar as preferred. Milk may be used instead of water. If the boiling is continued for half an hour, the porridge then turned out into a soup plate, and cold milk poured over it, it will become semi-solid. Oatmeal porridge is beneficial when constipation exists, but should not be used if there is tendency to diarrhœa. It is a nourishing food, but sometimes causes acidity or water brash.

Oatmeal Gruel.—Mix thoroughly but gradually one table-spoonful of groats with two of cold water, and add one pint of boiling water, stirring all the while. Boil for ten minutes, continuing the stirring. Sweeten with sugar, and add, if desired, a little sherry or brandy. Milk may be used instead of water. This is also a nourishing food, containing more nitrogenous matter than preparations of arrowroot.

Barley Water.—Wash two ounces of pearl barley well with cold water, and reject the washings. Then boil in a pint and a half of water for twenty minutes in a covered vessel, and strain. The liquid may be sweetened and flavoured with thinly-cut lemon peel, which may be introduced during the boiling.

Rice Water.—Well wash one ounce of rice with cold water. Then steep the rice for three hours in a quart of water kept at a tepid heat, afterwards boil slowly for one hour and strain. It may be sweetened and flavoured as barley water. A useful drink in dysentery and diarrhœa.

Linseed Tea.—Place one ounce of bruised linseed and two drachms of bruised liquorice root into a jug, and add one pint of boiling water. Let it stand lightly covered for three hours near a fire. Strain the liquid, which may be flavoured as mentioned for barley-water. Useful as a drink in urinary affections.

White-wine Whey, or 'Posset.'—Boil half a pint of milk in a saucepan, and while it is boiling add a wine-glassful of sherry. Strain, and sweeten as agreeable. A useful drink in colds and mild febrile attacks.

Tamarind Whey.—Boil a pint of milk, and while it is boiling add two table-spoonfuls of tamarind. Strain, and sweeten to taste. A cooling and slightly laxative drink.

TAMARIND DRINK.—Take a quarter of a pint of tamarinds, and pour over them a quart of boiling water. Sweeten as required, and cover till cold. A useful drink in fevers.

LEMONADE.—Pare the rind from a lemon thinly, and cut the lemon into slices. Put the peel and sliced lemon into a jug, with one ounce of white sugar, and pour over them one pint of boiling water. Cover the lid closely, and let it stand till cold. Then strain and pour off the liquid.

IMPERIAL DRINK.—Take half an ounce of cream of tartar, the juice of one lemon, and two table-spoonfuls of sifted white sugar. Put the whole in a jar, and pour over them one quart of boiling water. Cover till cold. A useful drink in fevers.

BREAD.—Obtaining good bread is very often a difficulty in India. Soda, and baking powders which contain an alkali, are objectionable, because they neutralise the gastric juice. So is very often the *mussallah* used by Native bakers instead of yeast, and which is not unfrequently sour. To procure yeast or barm is the difficulty in making good bread, which may be overcome, at least in the cooler weather, as follows :—Put half a breakfast-cupful of good hops into a saucepan with two quarts of cold water, and boil slowly for some hours until it is reduced to little more than one quart. Let this decoction get cool, then add half a breakfast-cupful of sugar, stir till the sugar is dissolved, then bottle and cork. Let the bottle stand in a cool place for three days, when yeast will be formed.

To make bread, take six pounds of flour, three table-spoonfuls of yeast, and one quart of lukewarm water. Put the yeast and water into the centre of the flour, mix, and cover with a cloth for five or six hours till it rises. Then add as much tepid water as will make the whole into dough, also a dessert-spoonful of salt, and knead properly. Cover, and let the mass stand till it ferments, which is known by its cracking on the top. Then divide into loaves and bake. Double the proportions of articles named will make better bread.

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